Canon Digital Imaging Product

SERVICE MANUAL

PowerShot A10
PowerShot A20

Digital Camera

English Edition

1 GENERAL DESCRIPTION OF PRODUCT

2 TECHNICAL DESCRIPTION

3 REPAIR INSTRUCTION

4 PARTS CATALOG

5 DIAGRAMS

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Photo Products Service Administration Division
First Edition 2001

Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, and repair of the products.

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SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine CANON replacement parts.
   Especially critical parts in the power circuit block should not be replaced with other makes.
   Critical parts are marked with ⚠ in the schematic diagrams.
2. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
3. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
4. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.
   4-1 Leakage Current Cold Check
      1) Unplug the AC cord and connect a jumper between the two prongs on the plug.
      2) Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ. When the exposed metal does not have a return path to the chassis, the reading must be ∞.
   4-2 Leakage Current Hot Check
      1) Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
      2) Connect a 1.5KΩ 10 watt resistor, paralleled by 0.15μF capacitor, between each exposed metallic parts on the unit and a good earth ground such as a water pipe, as shown in the figure below.
      3) Use an AC voltmeter, with 1000Ω/volt or more sensitivity, to measure the potential across the resistor.
      4) Check all exposed metallic parts of the cover (Cable connection, Handle bracket, metallic cabinet. Screwheads, Metallic overlays, etc), and measure the voltage at each point.
      5) Reverse the AC plug in the AC outlet and repeat each of the above measurements.
      6) The potential at any point should not exceed 0.75V RMS.
         A leakage current tester (FLUKE MODEL : 8000A equivalent) may be used to make the hot checks.
         Leakage current must not exceed 0.5 milliamp.
         In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and corrective action must be taken before returning the instrument to the customer.

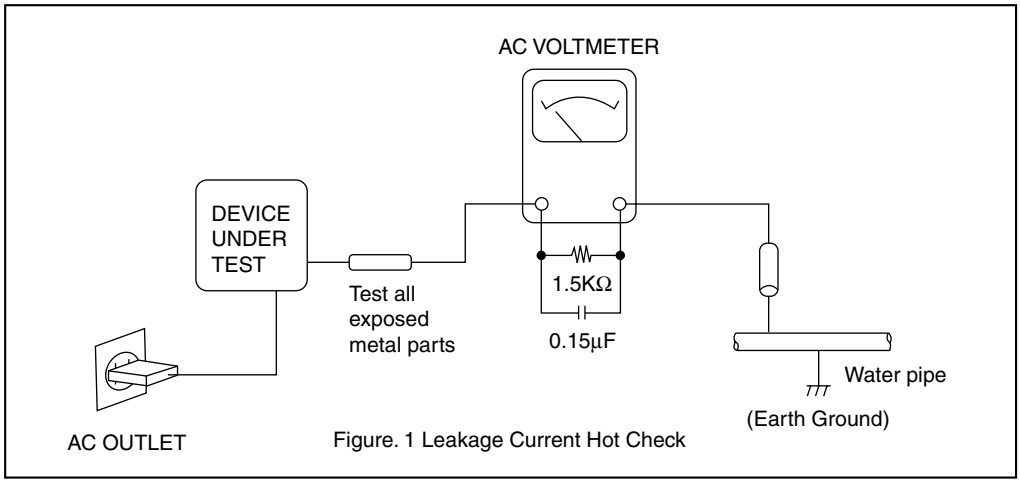

Figure. 1 Leakage Current Hot Check

CHAPTER 1. GENERAL DESCRIPTION OF PRODUCT

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The “IXY DIGITAL” Product designation used in this document refers to the DIGITAL IXUS, and PS 100 DIGITAL ELPH designations used in various marketing areas.
“IXY DIGITAL 300” refers to the IXY DIGITAL 300, and PS 300 DIGITAL ELPH designations used in various marketing areas.

1. Development Concept

1-1 Development Objectives

Canon has marketed the standard compact PowerShot A-series and S-series, the ultra-compact IXY series, the full-featured PowerShot G-series, and the top-end PowerShot Pro-series. In recent years, our competitors have concentrated on offering low-cost models to expand their market share as they target low-end user segments.
Thus, it has become imperative for Canon to offer digital cameras aimed at first-time users and those who just want have fun with low-cost and easy-to-use digital cameras.
The PowerShot A20 has a 1/2.7-inch, 2.11 megapixel CCD and a newly developed 3x optical zoom lens. Despite its low price tag, it offers the image quality and features found in high-end models. Much developmental attention was also given to the camera's design and economy. The camera exceeds the user's expectations of features from such a low-cost model. It thereby targets low-end users. The PowerShot A10, with a 1.31-megapixel CCD and almost the same features as the A20, will also be marketed at the same time to target users seeking an even cheaper model.

Basic & Good Value

PowerShot A20/A10

For

- **First-time digital camera users**
- **Users seeking fun with a digital camera**
- **Budget users**
- **As a second camera for hard-core users**

1-2 Product Concept

"Basic & Good Value" is the PowerShot A20/A10's product concept. It is for first-time users, those seeking fun with a digital camera, and users on a budget. It was designed to be easy to use for beginners while offering a good value for the money.
To set it clearly apart from the competition, the camera was also developed to provide high image quality and high-end features normally found in more expensive models. It also has a good number of accessories. This is to attract hard-core users who may want it as a secnd camera.
The small and simple Card Photo Printer CP-10 will also be marketed at the same time. Instead of viewing images only on a computer screen or TV monitor, you can easily make and view credit card-size prints of the images. This "easy printing" system may start a new oulture of digital camera printing.

High Image Quality

- Primary color filter and adaptive signal processing for maximum effect
- High-resolution, 1/2.7-inch type, 2.11-megapixel CCD (PS A20), 1/2.7-inch type, 1.32-megapixel CCD (PS A10)
- High-resolution, retractable, 3x optical zoom lens
- High-precision white balance (Auto + 4-position preset white balance)
- Intelligent AE for obtaining optimum exposures
- Exposure sensitivity set automatically according to the brightness
- Noise reduction function enables high SN ratio
- Superfine mode comparable to incompression image quality
- Totally round aperture for better background blur

Superior Features and Operation Ease

- Print directly to Card Photo Printer CP-10
- Camera controls on the back
- Digital zoom enables the angle of view to vary gradually
  (PS A20 : 2.5x (Max. 7.5x together with the optical zoom))
  (PS A10 : 2.0x (Max. 6x together with the optical zoom))
- Real-image optical zoom viewfinder
- Widely available size-AA batteries (Primary battery: Alkaline)
  (Secondary battery: NiCd, NiMH)
- Three-point AiAF for easy focusing
- Shoot at 1.7-sec. intervals
- Built-in flash range of 4.2 m (wide-angle end), slow-sync speed mode provided
- Shutter speeds from 1 sec. to 1/1500 sec
- Total of nine image quality modes (Recording pixels x compression ratio)
- Continuous shooting at 2.5 frames/sec.
- Self-timer provided
- Playback the image immediately
- Playback image magnification (2.5x) for easier viewing
- High-speed fast forwarding (during image playback)
- Selecting the video output signal (NTSC/PAL)
- USB I/F for high-speed image transfer

Saving Design

- Power-saving and space-saving, small-package new digital signal processing IC and CPU
- Low-temperature, polysilicon 1.5-inch LCD monitor with power-saving backlight
- Space-saving, new four-blade lens cover built-in
- High-performance red-eye reduction with power-saving LED
- Power-saving design enabling 1000 images to be recorded

System Accessory and Software

- Optical accessories (with conversion lens adapter)
  - Wide Conversion Lens for taking 24.5mm (35mm format equivalent) wide-angle shots.
  - Close-up lenses for close-ups, and any other 52mm filters
- Waterproof case good to 30 m underwater
- Smaller battery charger
- Compact power adapter also compatible with the IXY DIGITAL 300
- Nickel hydride Battery and Battery Charger
- Full-featured application programs
  - Easy-to-use ZoomBrowser EX 2.6 (Windows)/ImageBrowser 1.6 (Macintosh)
  - PhotoRecord 1.2 for easy layout and printing of many images
  - PhotoStitch 3.1 for seamless panoramic photos
  - RemoteCapture 1.4 to release the camera's shutter button from PC and image transfers to the PC directly
  - USB TWAIN Driver 3.6/USB WIA Driver/Plug-In Module 3.6
  - Apple QuickTime 4.1 (Movie replay/QVTR file creation)

1-3 Design Concept

● New reputation as an entry-model PowerShot

<Friendly design for mass market users>

The circle motif around the lens and the battery chamber positioned for a better grip give the camera a simple and easy-to-understand look.

● Luxurious exterior

<Metallic finish and color parts>

Although it is an entry-level model, it sports a pimpled metallic finish for a luxurious look. Also, the grip portion has a transparent color (smoke brown on the EC106 and smoke gray on the EC108) accenting the camera exterior, making the camera stand out.

● Easy-to-use user interface

<Ideal layout of large Mode Dial and buttons>

To enable easy operation while you refer to the LCD monitor, the highly readable Mode Dial and camera buttons are positioned around the LCD monitor on the back of the camera.

2. Features

2-1 High Image Quality

● Primary color filter and adaptive signal processing for maximum effect

From the PowerShot 600 onward, Canon has employed a complementary color (Cy, Mg, Ye, G) filter as the CCD on-chip filter to obtain color. Since the complementary color filter uses light efficiently, it makes the light sensitivity very good. It thereby helps to improve the SN ratio (especially the luminance).

However, since the camera processes the signal with the luminance signal and color signals (Cr/Cb), the image signal obtained must have the complementary colors converted into the primary colors (RGB) by the color matrix circuit. However, due to the differences in the spectral characteristics of the complementary color filter and primary color filter, a color conversion error can occur during the conversion process. This error is prone to decrease the color SN ratio.

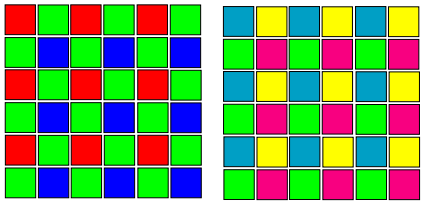


Fig. 2-1 Filter array.

When a primary color filter is used as the CCD on-chip filter, the resolution and luminance SN ratio becomes worse than with a complementary color filter. However, it is superior when it comes to normal color reproduction. Recently, there have been more digital cameras that use a primary color filter.

The IXY DIGITAL 300 and PowerShot A20/A10 the are the first Canon digital cameras (excluding SLR models) to employ a primary color filter.

However, just switching to a primary color filter will not necessarily result in good image quality. This is because the resolution and luminance SN ratio will be lower. To compensate for the demerits of the primary color filter, a new signal processing circuit has been incorporated.

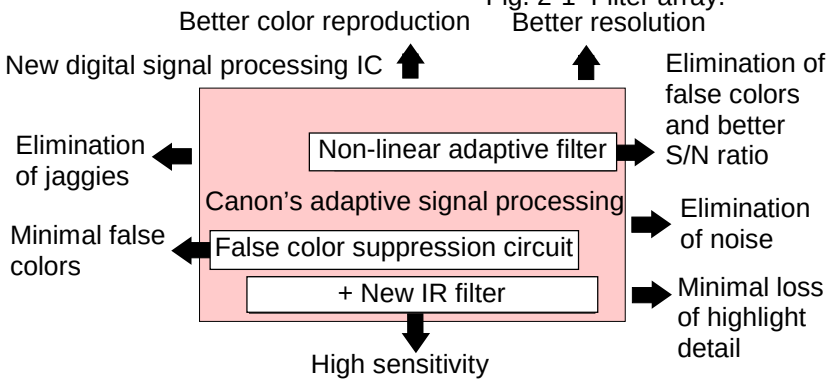


Fig. 2-2 New digital signal processing IC.

A new digital signal processing IC has been developed and installed in the camera. The adaptive processing technology employed in the EOS D30 camera has been theoretically reconstructed in the new digital signal processing IC. The new digital signal processing IC eliminates the false colors created by the non-linear adaptive filter and improves the SN ratio. The new IR filter also increases the light sensitivity. Thus, the color reproduction quality is very high while the same resolution and high SN ratio obtained by the complementary color filter are also obtained.

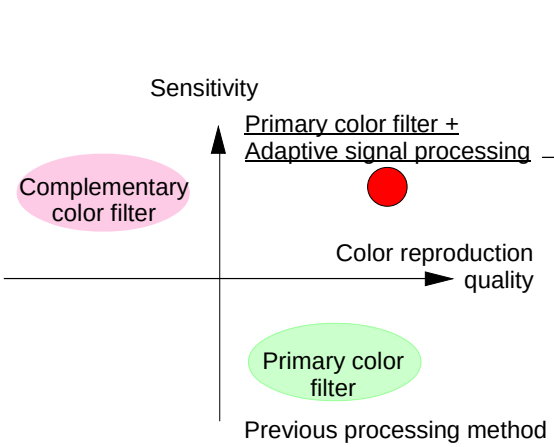


Fig. 2-3 Filter types and features.

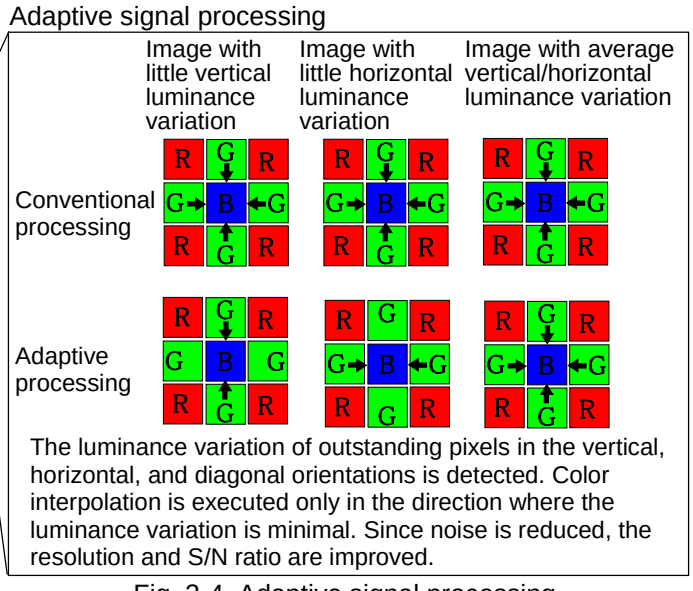

Adaptive signal processing
Image with little vertical luminance variation
Image with little horizontal luminance variation
Image with average vertical/horizontal luminance variation
Conventional processing
Adaptive processing
The luminance variation of outstanding pixels in the vertical, horizontal, and diagonal orientations is detected. Color interpolation is executed only in the direction where the luminance variation is minimal. Since noise is reduced, the resolution and S/N ratio are improved.

Fig. 2-4 Adaptive signal processing.

● **High-resolution, 1/2.7-inch, 2.11-megapixel CCD (PS A20),**
1/2.7-inch, 1.32-megapixel CCD (PS A10)

To enjoy a digital image as a print, the original image must have the number of pixels matching the print size. Normally, a regular size print requires 1.3 megapixels, a postcard-size print needs 2 megapixels, and a 5x7 in. print must have 3 megapixels to attain adequate image quality.

Since the PowerShot A20 has a 1/2.7-inch, 2.11-megapixel CCD, it can record a 1600 x 1200 pixel image which is adequate for a postcard-size print. When the Card Photo Printer CP-10 is used to print out the image, an image quality of 5.9 lp/mm can be obtained for a credit card-size print. This is comparable to a normal print from a film negative.

Since the PowerShot A10 has a 1.32-megapixel CCD, the resolution is numerically about 80 percent of the PowerShot A20's. Since the CCD chip size of 1/2.7 inches is the same as the PowerShot A20's chip, the camera has a high exposure sensitivity compared to 1.3-megapixel digital cameras equipped with a 1/3.6-inch CCD.

**Althougt it can achieve 7.9lp/mm(A20) or 6.3lp/mm(A10) of resolution with the camera, the limit resolution is regulated by printer's resolution because the printer's resolution is lower from the camera's*

	Postcard size (148 × 100 mm)	Regular size (E) (120 × 82 mm)	Credit card size (86 × 54 mm)
PS A20 (1600 ×1200)	4.5 lp/mm	5.4 lp/mm	5.9 lp/mm
PS A10 (1280 × 960)	3.6 lp/mm	4.3 lp/mm	5.9 lp/mm

Table 2-1 Print size and image resolution (calculated values) obtainable with the PowerShot A20/A10.

● **High-resolution 3x optical zoom lens (retractable)**

The PowerShot A20/A10 is equipped with a 5.4 - 16.2 mm (3x) zoom lens (equivalent to 35 - 105 mm in 35 mm format) suited for a wide range of picture-taking, from landscapes to snapshots. The lens has 9 elements in 7 groups, including one single-side aspherical element. From the front of the lens, there is group 1 (4 elements), group 2 (3 elements), and group 3 (2 elements). Rear focusing is executed by moving group 3. The focusing group's compact configuration makes the lens movement faster and while consuming less power.

As for the optical performance, the aspherical element is a highly refractive index, glass-molded element to cope with the PowerShot A20's Nyquist frequency of 152.7 lp/mm. This effectively suppresses distortion so that the lens provides high resolution and low distortion.

When the lens is extended, the lens length is 47.3 mm (at the wide-angle end)/46.1 mm (at the telephoto end). When the lens is retracted, the length shrinks to 28.11 mm to minimize the lens protrusion.

● **High-precision white balance (Auto + 4-position[*1] preset white balance)**

As with previous models, the PowerShot A20/A10 has auto white balance to obtain the optimum color temperature. It also has a "Preset" setting (Daylight, cloudy, tungsten, fluorescent) to suit the respective light source's color temperature. The user can thereby select the suitable white balance setting.

The PowerShot A20/A10's white balance is controlled by dividing the scene into over a hundred thousand of blocks[*2/*3]. The white balance data is collected from each block and computed. Also, the table for deriving the coefficient (matrix) that determines the RGB values is optimized for each metering. The result is very high-precision exposure metering.

[*1] Although four preset white balance settings are provided, an icon for the Black and White mode is also displayed alongside the preset white balance icons.

[*2] PowerShot A-series: 16 blocks, S-series: 64 blocks, G1 and Pro90 IS: Several hundreds of thousands of blocks.

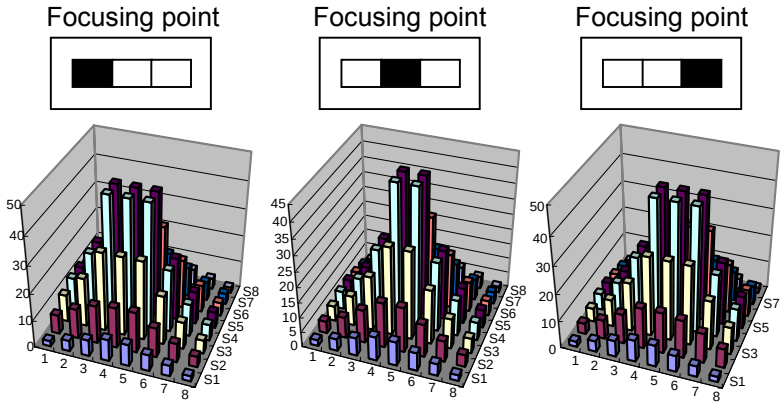
[*3] Except PowerShot A10

● **Intelligent AE for obtaining optimum exposures**

Compared to silver-halide film, the CCD's exposure latitude is narrow. Even a slight exposure error will eliminate highlight or shadow detail, resulting in lower image quality. To obtain highly precise exposures, previous digital cameras have used feedback AE, multi-zone metering, meter weighting control, and other exposure control methods.

To improve the exposure precision even more, the Intelligent AE system has been developed for the PowerShot A20/A10. The AE control system has been revamped and Intelligent AE is able to obtain the optimum exposure in a wide variety of picture-taking situations.

It mainly consists of the following: 1. Three-point AF linked AE, 2. Exposure compensation for low light and backlight conditions, and 3. Close-distance flash exposure compensation. A more precise exposure is thereby obtained even under these conditions which are prone to cause exposure errors.



*These are only sample metering patterns out of many others.

Fig. 2-6 Metering pattern (Three-point AF linked AE).

1 Three-point AF linked AE

The position of the main subject is identified with the three focusing points.

Any other objects within the depth of field are also identified and the optimally weighted metering pattern is used.

2 Exposure compensation for low light and backlit conditions.

Based on the exposure results, any low-light or backlit condition is identified.

In low-light conditions, the exposure is controlled to prevent the subject from being overexposed. In backlit conditions, the meter reading weighted on the bright area is decreased or eliminated.

3 Close-distance flash exposure compensation.

If the subject is close, the flash metering data overflows during the preflash.

If data overflow is detected, the meter reading is taken again while incorporating exposure compensation. The main exposure is also set again simultaneously.

● **Exposure sensitivity set automatically according to the brightness**

With the PowerShot A20/A10, the camera sets the optimum exposure sensitivity (film speed) anywhere from ISO 70 to 140 to suit the ambient brightness. For bright scenes when camera shake is not likely, ISO 70 is set to obtain high image quality with little noise. For low-light scenes, ISO 140 is set and more than twice shutter speed (compared to when ISO 70 is set) is used to prevent camera shake. See Table 2-2.

At EV 8 (Max. aperture: f/2.8)

ISO Equivalent	ISO70	ISO140
Shutter speed	1/22	1/44

Table 2-2 Correlation between the ISO setting and shutter speed.

● **Noise reduction function enables high SN ratio**

Normally with a CCD, the longer the exposure is, the more noise the image will have. With the PowerShot A20/A10 noise reduction is executed automatically.

The process of noise reduction is as follows : After the exposure ends, the aperture remains closed and another exposure is taken at same shutter speed used for the preceding shot. This enables the camera to capture only the noise factors as data, and these noise factors are removed from the preceding shot. The noise in image is thereby reduced.

With the PowerShot A20/A10, when the shutter speed is 1/6sec. or lower, noise reduction is executed. With the PowerShot A10, when the CCD temperature reaches a certain temperature, noise reduction is executed additionally regardless of the shutter used.

● **Superfine mode comparable to incompression image quality**

The PowerShot A20/A10 has a Superfine mode that uses a lower compression ratio than with the Fine mode. The Superfine mode offers an image quality nearly as good as with an incompressed TIFF image. And yet, the file size is greatly reduced with the JPEG baseline format.

Since the Superfine mode is a non-reversible compression method, you cannot restore the original data completely. Since the compression ratio is extremely low, there are no block distortions usually found in JPEG images. The high image quality is more than adequate for business use.

The processing time is also short. Since the image is in the normal JPEG baseline format, you can view it without a dedicated TWAIN Driver. It is a widely compatible mode.

	Superfine	Fine	Normal
Large	1/4.0	1/6.3	1/12.7
Medium	1/3.5	1/5.3	1/10.1
Small	1/3.0	1/4.4	1/7.8

Table 2-3 Compression ratio of image quality modes.

2-2 Superior Features and Operation Ease

● Print directly to Card Photo Printer CP-10

The PowerShot A20/A10's direct print mode enables you to print out images with the dedicated Card Photo Printer CP-10 by connecting the camera to the printer with a dedicated cable.

In the playback mode, you just select the Print command in the Print dialog box displayed on the LCD monitor on the camera back. The printer will then print the image. You control the printer with the camera.

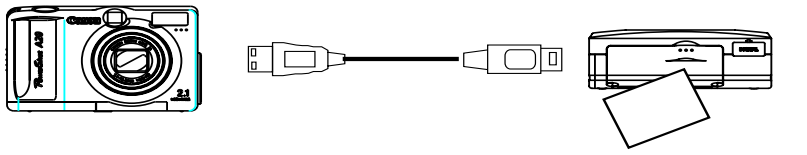


Fig. 2-7 Direct printing

With a resolution of 300 x 300 dpi, the CP-10 provides the same image quality as Digital Printer CD-300 even though it is more compact. It also can apply a protective coating on the print for better durability.

The print size is the same as a credit card (54 x 86 mm). This size is easy to organize and carry around. There are various printing options: Standard, multiple (label paper), borderless print, bordered print, date imprinting.

The printing speed is 56 sec. for a print with borders. This is the fastest in its class.

For direct prints, the camera must be able to execute at high speed the printer's color processing which is normally done by the driver in the PC. The camera must have a high-performance processor and the color processing must be geared for high speed execution.

In the case of the IXY DIGITAL 300, part of the processing is executed by the camera's digital signal processing IC at high speed. And the CP-10 is a sublimation printer that obtains high image quality even with color processing that is simpler than that of inkjet printers.

Since the processing must be executed at high speed, single-dimensional processing is executed instead of three-dimensional processing. By optimizing the color characteristics of the inks used, the resulting color reproduction is adequate for practical use.

Figure 2-8 shows the process flow for making a print. The digital signal processing IC executes this process at high speed until the resizing step. Then the camera executes the sharpness, color conversion, and density conversion.

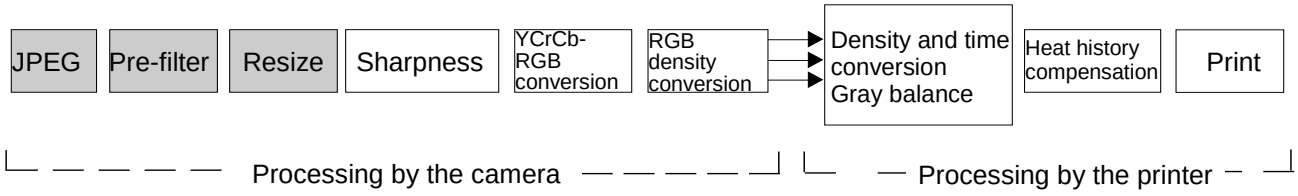


Fig. 2-8 Direct printing process flow.

● Camera controls on the back.

Photo 2-1 Back of the PowerShot A20.

The PowerShot A20/A10 has all the camera controls (except the shutter release button) on the back, including the Mode Dial which was hitherto on the camera top.

This enables you to operate the camera without looking back and forth between the top and back of the camera. You can also easily look at the LCD monitor at the same time.

● **Digital zoom enables the angle of view to vary gradually (PS A20 : 2.5X (Max. 7.5X together with the optical zoom)) (PS A10 : 2.0X (Max. 6X together with the optical zoom))**

As with the PowerShot A20/A10, the IXY DIGITAL 300 has a digital zoom.

The digital zoom in previous models (PowerShot S10 through Pro90 IS) combined an optical zoom and digital teleconverter. Within the digital zoom range (when the digital teleconverter operates), the CCD's reading area becomes limited to the center portion. Therefore, the number of pixels used for the image is reduced to 1/4 for a 2X magnified image or to 1/16 for a 4X magnified image. This dramatic decrease in image quality was the disadvantage of digital zoom.

With the PowerShot A20/A10, the lens moves to the telephoto end. Then when it enters the digital zoom range, the lens remains in the same position while the CCD's reading area is gradually limited to the center portion. As a result, a uniform zoom (telephoto) effect is obtained. This is the digital zoom system.

There is no sudden decrease in image quality unlike with the digital teleconverter. (See Fig. 2-9.)

The PowerShot A20 can change the angle of view up to 7.5X (or 263 mm in the 35 mm film format).

The PowerShot A10 can change the angle of view up to 6.0X (or 210 mm in the 35 mm film format).

• PowerShot A20

Magnification	Focal Length (Equivalent to 35mm format)	Readable Pixels
1X (Telephoto end)	105 mm	1600X1200
Image read at 5 positions during this angle (for the display)		
1.25X (Telephoto end)	131 mm	1280X960
Image read at 5 positions during this angle (for the display)		
1.56X (Telephoto end)	164 mm	1024X768
Image read at 6 positions during this angle (for the display)		
2X (Telephoto end)	210 mm	800X600
Image read at 5 positions during this angle (for the display)		
2.5X (Telephoto end)	263 mm	640X480

• PowerShot A10

Magnification	Focal Length (Equivalent to 35mm format)	Readable Pixels
1X (Telephoto end)	105 mm	1280X960
Image read at 5 positions during this angle (for the display)		
1.25X (Telephoto end)	131 mm	1024X768
Image read at 6 positions during this angle (for the display)		
1.6X (Telephoto end)	164 mm	800X600
Image read at 5 positions during this angle (for the display)		
2 0X (Telephoto end)	210 mm	640X480

Table 2-4 Focal length and readable pixels during digital zooming

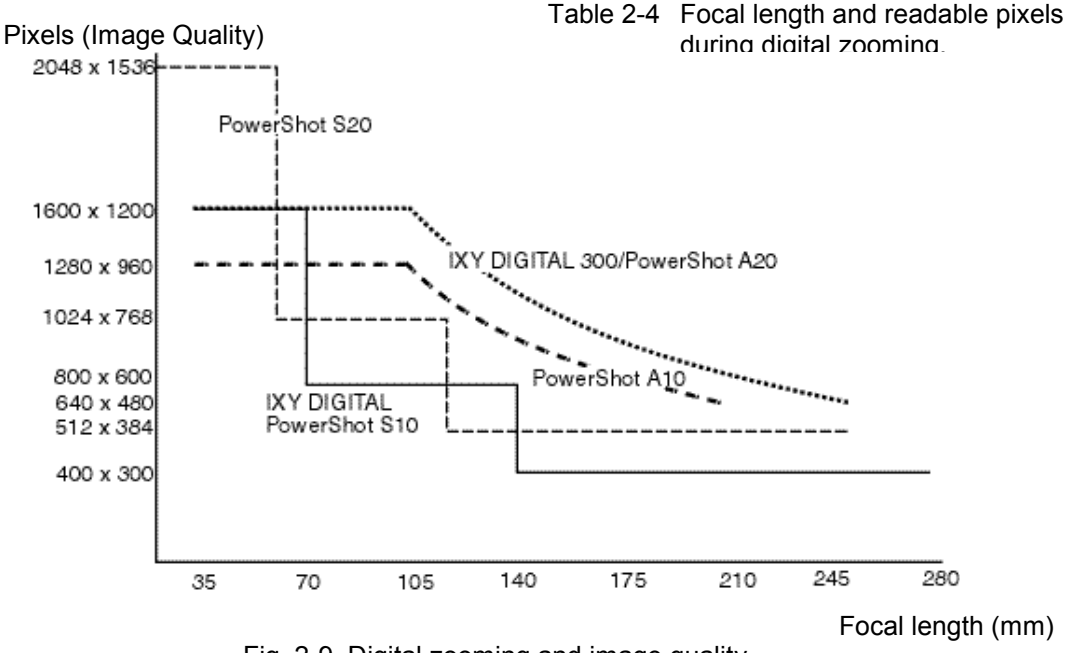


Fig. 2-9 Digital zooming and image quality.

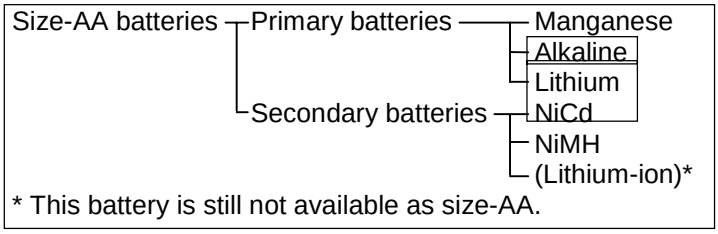
● **Widely available size-AA batteries (Primary battery: Alkaline)**
(Secondary battery: NiCd*, nickel hydride)

To make the camera body more compact, the PowerShot A-series and S-series cameras use a lithium 2CR5 battery or a dedicated, rechargeable Ni-MH battery. The IXY DIGITAL uses a dedicated, rechargeable Li-ion battery. However, most competing models use size-AA batteries which are favored for their widespread availability and low price. Users also support that size-AA batteries can be used.

Many audio-video products and toys use size-AA batteries. There is a wide variety of size-AA batteries such as manganese,* alkaline*, and lithium used as primary batteries. Secondary batteries include NiCd and NiMH batteries.

The PowerShot A20/A10 uses size-AA batteries because they are widely available and cheap. The camera can use alkaline battery. And it can use NiCd, NiMH as secondary batteries.

You can therefore choose from a wide variety of batteries to suit the shooting conditions and environment.



* The PowerShot A20/A10 cannot use manganese batteries.
Alkaline batteries should be used which are Canon's recommendation.
Ni-Cd batteries are not recommended positively because they have various performances.

● **Three-point AiAF for easy focusing**

The PowerShot A20/A10 uses the AiAF[*1] system already proven in film-based cameras. With three focusing points, the camera can focus off-center subjects even without prefocusing.

The PowerShot A20/A10's three focusing points obtain focusing data from the three respective frames shown in Fig. 2-11. The most reliable focusing data is identified and then applied. As a general rule, the closest object covered by a focusing point is deemed as the main subject. So if there are two off-center subjects and nobody at the center (Fig. 2-12-a) or, if the main subject is off-center (Fig. 2-12-b) the camera will focus the correct subject.

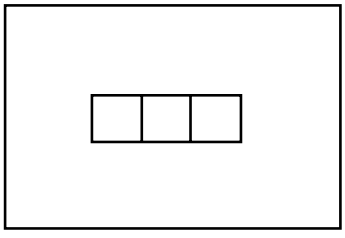


Fig. 2-11 Focusing frames.

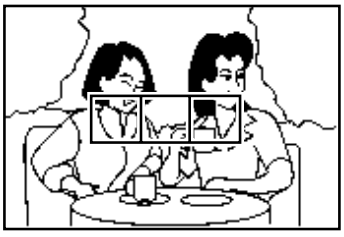


Fig. 2-12-a

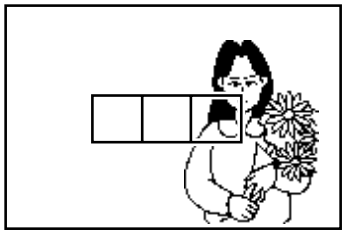


Fig. 2-12-b

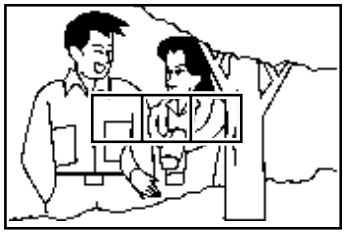


Fig. 2-12-c

[*1]The PowerShot A20/A10's AiAF system focuses the closest subject covered by the three focusing points. Therefore, if there is an object in front of the main subject as shown in Fig. 2-12 or if the camera is oriented vertically for the shot in Fig. 2-12-a, the camera may focus the wrong subject.

● **Real-image optical zoom viewfinder**

The PowerShot A20/A10's optical viewfinder is a real-image viewfinder consisting of an objective lens with 3 elements in 3 groups, a fully reflective prism to bend the light flux compactly, a roof prism to right the inversed image formed by the objective lens bending the light flux, and an eyepiece lens.

This optical viewfinder is coupled to the lens zooming operation. Thus, the viewfinder image also zooms during lens zooming. The compensator lens and variator lens in the viewfinder's objective lens move along the viewfinder's optical axis to show the proper viewfinder image matching the image obtained by the lens zooming.

To make the viewfinder compact, the objective lens has only 3 elements. Each element is aspherical. In particular, the variator element has an optimum lens shape being aspherical on both sides. It is positioned for optimum refraction. Also, the viewfinder's height and depth are kept compact with two prisms whose optical axes are refracted along the same plane by the reflective surfaces. Moreover, four fully reflective surfaces (one on the fully reflective prism and three on the roof prism) are used, and only one surface is a vapor deposition mirror. The inherent light loss is thereby minimized and a flare-cutting diaphragm is strategically positioned to eliminate unwanted light rays. The result is a bright viewfinder image.

Also, the long eye relief of 16 mm enables even eyeglass wearers to easily see the viewfinder image.

● **Shoot at 1.7-sec. intervals**

The PowerShot A20/A10 has a new digital signal processing IC which is an improved version of the Canon-developed digital signal processing IC. It enables a short shooting interval of 1.7 sec.

Also, other time-consuming functions such as camera startup, digital zooming, image playback, magnified viewing, and image scrolling now perform in a shorter time.

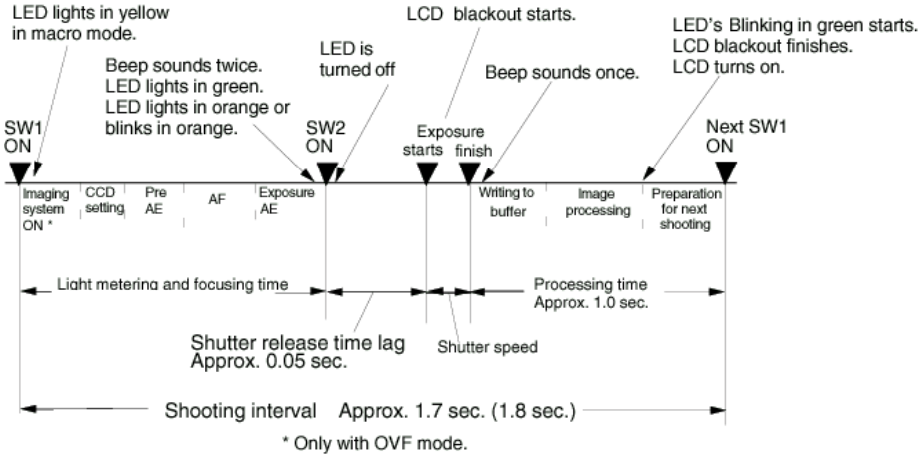

LED lights in yellow in macro mode.
Beep sounds twice. LED lights in green. LED lights in orange or blinks in orange.
LED is turned off
LCD blackout starts.
Beep sounds once.
LED's Blinking in green starts. LCD blackout finishes. LCD turns on.
SW1 ON
SW2 ON
Exposure starts
finish
Next SW1 ON
Imaging system ON *
CCD setting
Pre AE
AF
Exposure AE
Writing to buffer
Image processing
Preparation for next shooting
Light metering and focusing time
Processing time Approx. 1.0 sec.
Shutter release time lag Approx. 0.05 sec.
Shutter speed
Shooting interval Approx. 1.7 sec. (1.8 sec.)
* Only with OVF mode.

Fig. 2-13 Shutter release time lag and shooting interval.

● **Built-in flash range of 4.2 m (wide-angle end), slow-sync speed mode provided**

The PowerShot A20/A10's built-in flash has a large-capacity capacitor and a large flash tube to provide the highest flash output in this camera class. This extends the flash range to 4.2 m at the wide-angle end.

A slow-sync speed mode is also provided to properly expose a dark background behind a human subject.

PowerShot A20/A10	PS A50, S10/20, G1, Pro90 IS	Applicable Conditions	Results
Slow-sync Speed Mode	Night Scene mode / Flash ON	The subject is in front of a sunset, night scene, etc.	Both the subject and background are exposed correctly.
Manual Mode / Flash OFF	Slow shutter speed or long exposure / Flash ON	Indoor lighting effects are desired.	The effects of the indoor lighting become apparent.

Table 2-4 Applicable conditions and results with various flash modes.

● **Shutter speeds from 1 sec. to 1/1500 sec.**

The PowerShot A20/A10 boasts the fastest shutter speed in its camera class with 1/1500 sec. This shutter speed can freeze a fast-moving subject quite well. Also, with the f/13.4 aperture (at the telephoto end), the camera can take pictures of scenes as bright as EV 18. This is suitable for a sunny beach and ski slope.

The slowest shutter speed of 1 sec. and the f/2.7 aperture (at the wide-angle end) enable the camera to photograph scenes as dark as EV3. This is effective for sunsets and dim indoor lighting without using flash.

● **Total of nine image quality modes (Recording pixels x compression ratio).**

The PowerShot A20/A10 offers a choice of nine image quality combinations with three pixel modes (Large, Medium, and Small) and three compression ratios (Superfine, Fine, and Normal).

The user can select the image quality mode that suits the respective purpose.

High-quality print — On-screen display

Large Superfine	Large Fine	Large Normal
Medium Superfine	Medium Fine	Medium Normal
Small Superfine	Small Fine	Small Normal

Archival — Internet image

Table 2-5 Application of image quality modes.

2-3 Power-saving Design

● New and compact digital signal processing IC and CPU with low power consumption

The PowerShot A20/A10 uses a new digital signal processing IC which is an improved version of the digital signal processing IC found in the PowerShot S10 and later models.
The new digital signal processing IC features high performance and sophisticated functions in a compact package. It also consumes little power and greatly contributes to the downsizing of the camera.
The PowerShot A20/A10 also has the same space-saving CPU found in the IXY DIGITAL.

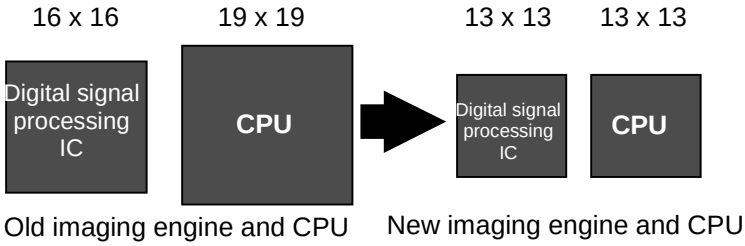


Fig. 2-14 Size comparison (in mm) of the old and new digital signal processing IC and CPU.

● Thin, low-temperature polysilicon LCD monitor consuming little power

In previous models, a flat fluorescent tube was used as the LCD backlight. Since flat fluorescent tubes require a high voltage to light up, an inverter circuit had to be included. This made the backlight unit bulky. Its high power consumption also required a large battery, making the camera less compact.
Like the IXY DIGITAL, the IXY DIGITAL 300 uses a white LED for the backlight. The white LED consumes little power and therefore does not require an inverter circuit or a large battery. The result is a thinner camera. Also, as shown in the figure, the extra space afforded by the backlight unit's oblique shape is utilized by the optics. Space is thereby used efficiently.
Also, the LCD unit is a new, highly transparent unit. The lens sheet was made so that the backlight LED's light tubes could be reduced from four (on the IXY DIGITAL) to three without the brightness decreasing. This saved more space and power.

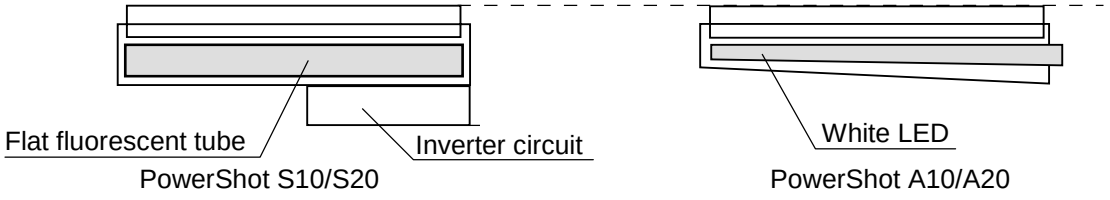
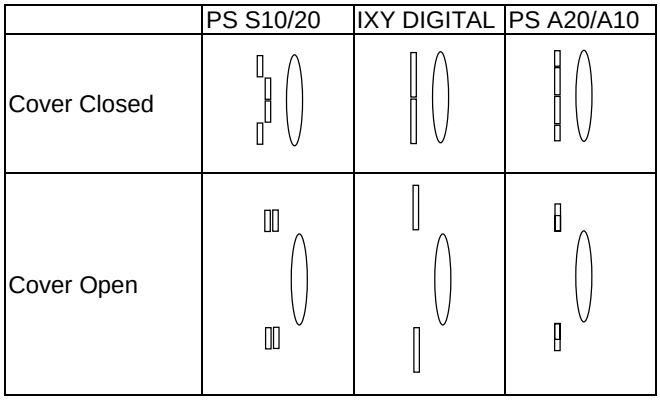


Fig. 2-15 LCD unit construction.

● Space-saving, new four-blade lens cover built-in

Since the PowerShot A20/A10's lens diameter (front element) is bigger than that of the PowerShot S10/S20 and IXY DIGITAL, the built-in lens cover is proportionately larger. If the same 4-blade lens cover used in the PowerShot S10/S20 is incorporated in the PowerShot A20/A10, it would make the camera too thick. And incorporating the IXY DIGITAL's 2-blade lens cover would require a larger radius.
A new 4-blade, built-in lens cover was therefore developed to save space in the PowerShot A20/A10.
Although it has four blades like the PowerShot S10/S20's lens cover, the new lens cover has two large blades and two small blades set on the same plane. Since the space for the lens cover is only two-dimensional, the increase in the thickness and height is minimized.



(This is only a conceptual illustration which does not show the actual movement.)

Fig. 2-16 Lens cover when open and closed.

● **High-performance, red-eye reduction with power-saving LED**

For red-eye reduction in flash pictures, the PowerShot A20/A10 has a red-eye reduction lamp in the flash unit. To reduce the chances of red eye occurring in the human subject, the red-eye reduction lamp lights before the flash fires. The red-eye reduction lamp is a bright, high-performance, orange LED with low power consumption.

It can attain the same red-eye reduction effect as the PowerShot S10/S20's red-eye reduction lamp while consuming less power.

● **Power-saving design enabling 1000 images to be recorded**

With an imaging engine consuming little power, an LCD monitor with no backlight, and a lower power supply voltage, the PowerShot A20/A10 was designed to save power. Also, with size-AA batteries serving as the power source, the camera can capture 500 images with alkaline batteries*, and 1000 images with NiMH batteries*.

** Specified batteries*

2-4 Accessory and Software

● Abundant optical accessories (Conversion Lens Adapter required)

- Wide Conversion Lens for taking 24.5mm (35mm film equivalent) wide-angle shots
  Wide Conversion Lens WC-DC52 has been newly developed so that the PowerShot A20/A10 can take wide-angle shots not possible with the 35-105mm (35mm film equivalent) lens.
  The WC-DC52 reduces the camera lens focal length to 0.7x which affords a wide-angle effect equivalent to 24.5mm in the 35mm format. This is unique among cameras in the same class. Conversion Lens Adapter LA-DC52 is also required.

  - When the wide converter is attached, the optical viewfinder cannot be used. The LCD monitor must be used instead. The flash also cannot be used because it will be obstructed by the wide converter.

- Close-up lenses for close-ups, and 52mm filters
  To enable close-ups, close-up lenses (250D 52mm) can be used. Also, 52mm filters can be attached* to obtain a variety of visual effects. Conversion Lens Adapter LA-DC52 is required to attach a close-up lens or filter to the camera.

  - When a filter is attached, the optical viewfinder and built-in flash cannot be used. There are also filters that may affect the exposure control.

● Waterproof case effective down to 30 m underwater

PowerShot A20/A10's waterproof case allows you to use the camera at the beach, in wet weather, and underwater down to 30 meters. Unlike the weather-proof AW-PS100/110 and AW-PS200 cases for previous models allowing 3-meter underwater use, the IXY DIGITAL 300's waterproof case enables you to use the camera for scuba diving.

● Compact power adapter

For the user's convenience, a power adapter will be marketed along with the PowerShot A20/A10. This power adapter can also be used with the PowerShot A20/A10 which will be marketed at the same time as the IXY DIGITAL 300. The power adapter's output voltage is designed to be within the common voltage range of both the IXY DIGITAL 300 and PowerShot A20/A10.
Power is supplied to the camera via the DC Coupler DR-500.

● Ni-MH batteries + Charger

For economy-minded users, secondary, rechargeable Ni-MH batteries and a Canon battery charger will be available for the PowerShot A20/A10.
The battery voltage is 1.2 V, and the capacity is 1600 mAh (min. 1550 mAh). With the dedicated battery charger, two batteries can be recharged in about 110 min. (TBD), and four batteries can be recharged in about 220 min. (TBD).

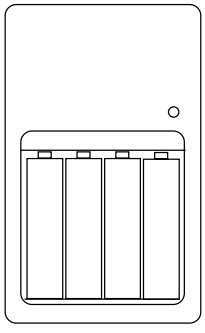


Fig. 2-17 Ni-MH batteries + charger.

● **Full-featured application programs**

• Easy-to-use ZoomBrowser EX 2.6 (for Windows)/ImageBrowser 1.6 (for Macintosh)

The ZoomBrowser EX (for Windows) and ImageBrowser (for Macintosh) programs marketed at the same time as the PowerShot S-series cameras were well received. Upgraded versions (ZoomBrowser EX 2.2/ImageBrowser 1.2) of both programs were offered when the IXY DIGITAL came out. For the PowerShot G1, ZoomBrowser EX 2.4 and ImageBrowser 1.4 have been made compatible with the Canon BJ-F870PD printer to be marketed in Dec. 2000 (Japan only). When you insert a Compact Flash card into the printer, the ZoomBrowser EX /ImageBrowser program starts up automatically.

ZoomBrowser EX 2.6 for the PowerShot A20/A10 and IXY DIGITAL 300 is for simple image editing such as color, brightness, and contrast adjustments and image cropping. It enables on-screen slide shows, DPOF editing, and e-mail support. It can change the image to the required size and compression ratio (image quality) to attain the desired file size. The e-mail program starts up automatically and the image is attached to a new message automatically. If the e-mail program does not start up automatically, the resized image is saved and it can be attached to an e-mail message manually.

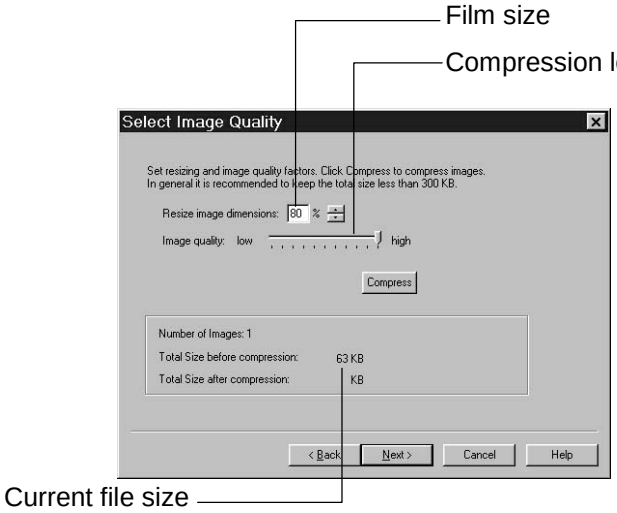


Fig. 2-18 Compression level and film size setting dialog box.

Like the ZoomBrowser EX 2.6, the ImageBrowser 1.6 is also a simple image-editing program. It can be used for on-screen slide shows and DPOF editing, and it is also compatible with e-mail.* Its printing function has been improved with options enabling you to print multiple images on one page, change the order of the images, resize or rotate the image, and insert text.

You can also use ZoomBrowser EX 2.6/ImageBrowser 1.6 to adjust the image quality parameters of images captured in the RAW mode by the PowerShot G1/Pro90 IS, and EOS D30 (the PowerShot A20/A10 does not have a RAW mode).

-With the ImageBrowser program, the image is not attached to an e-mail message automatically. The user must do it manually.

• Photorecord 1.2 (Windows only) for easy layout and printing of photos

Photorecord 1.2 enables you to easily layout and print out photos. In the ZoomBrowser EX browser area or in the camera window, you select the folder or image you want to print. Then you just click on the Print Layout button to insert text anywhere or select a text frame.

Also, with the new Extension DDI driver developed for the new BJ-F870 printer, the photos will be automatically laid out for the borderless printing paper (perforated) that will be marketed at the same time. You can thereby easily print out borderless photos with the next generation of BJ printers.

In Japan: 5 sizes
L size
2L size
DSC size
8”x10” size for digital camera
Glossy Photo Card 6” x 4” size

Outside Japan: 2 sizes
Glossy Photo Card 6” x 4” size
Photo Card Pro 6” x 4” size

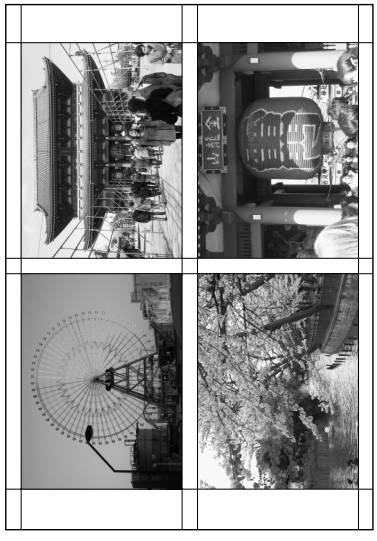


Fig. 2-19 Automatic layout for the borderless printing paper.

• PhotoStitch 3.1 for seamless panoramic photos

Pictures taken in the stitch assist mode can be used to create a long panoramic picture with PhotoStitch 3.1. This program automatically obtains the camera's property information (compositing orientation, image sequence, focal length, and camera model name) used to stitch the images together. The operation is easy, yet highly precise.

You also have the option of cylindrical imaging (for pasting on a curved surface) or flat imaging (for pasting on a flat surface) to create panoramic pictures having much less distortion than before. You can also save the panoramic picture in the QuickTime VR format.

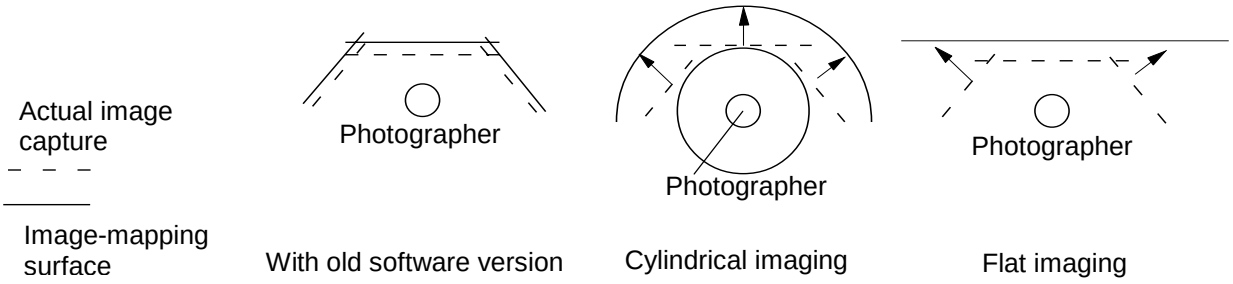


Fig. 2-20 Imaging methods.

• RemoteCapture 1.3 to release the camera's shutter button from the PC and direct image transfers directly

With RemoteCapture 1.3, you can operate the PowerShot A20/A10 remotely with a PC. In the PC mode, you can transfer or delete images. In the remote control mode, you can also operate the camera's picture-taking functions.

The following remote control operations and settings are possible with a PC:

- Thumbnail display of all captured images in the current session since Remote Capture 1.3 was started
- Index printing of thumbnail images
- Display of the thumbnail's original image
- Shutter release operation (single shooting, interval shooting, test shooting)
- Indication of the remaining number of images that can be saved in the computer or camera's Compact Flash card
- Display of the image's brightness distribution pattern
- Display of shooting data (date, shooting mode, shutter speed, aperture, etc.)
- Rotation of an image saved in the computer
- Setting of the zoom position (excluding electronic zoom)
- Setting of the white balance, recording pixel/compression ratio, macro, flash, and exposure compensation
- Enabling or disabling the image for saving in the Compact Flash card

• USB TWAIN Driver 3.6/USB WIA Driver/Plug-In Module 3.6

For compatibility with the new Windows ME operating system, the camera is bundled with a new USB WIA Driver. If the OS is Windows 98 or Windows 2000, the USB TWAIN driver can be used. For Windows ME, the USB WIA Driver is used. The new driver is compatible with the WIA (Windows Image Acquisition) provided by Windows ME.

You can also use this program to adjust the image quality parameters of images captured in the RAW mode by the PowerShot G1/Pro90 IS, and EOS D30 (the PowerShot A20/A10 does not have a RAW mode).

• Highly-rated third-party software

Apple QuickTime 4.1

This is a standard multimedia tool for playing movies, sound, still images, etc. It can play the movie clips and sound recorded by the IXY DIGITAL 300, PowerShot Pro90 IS and PowerShot G1. It can also save the PhotoStitch-created image in the QTVR format.

3. Exterior

3-1 Product Photos

Photo 3-1 PowerShot A20 front

Photo 3-2 PowerShot A10 front

Photo 3-3 PowerShot A20 top

Photo 3-4 PowerShot A20 rear

● **Main accessories**

Lens accessory

Photo3-5 Wide Converter WC-DC52

Photo3-6 Conversion Lens Adapter LA-DC52

Photo3-7 Close-up lens 250D

Battery accessory

Photo 3-8 Compact Power Adapter CA-PS500

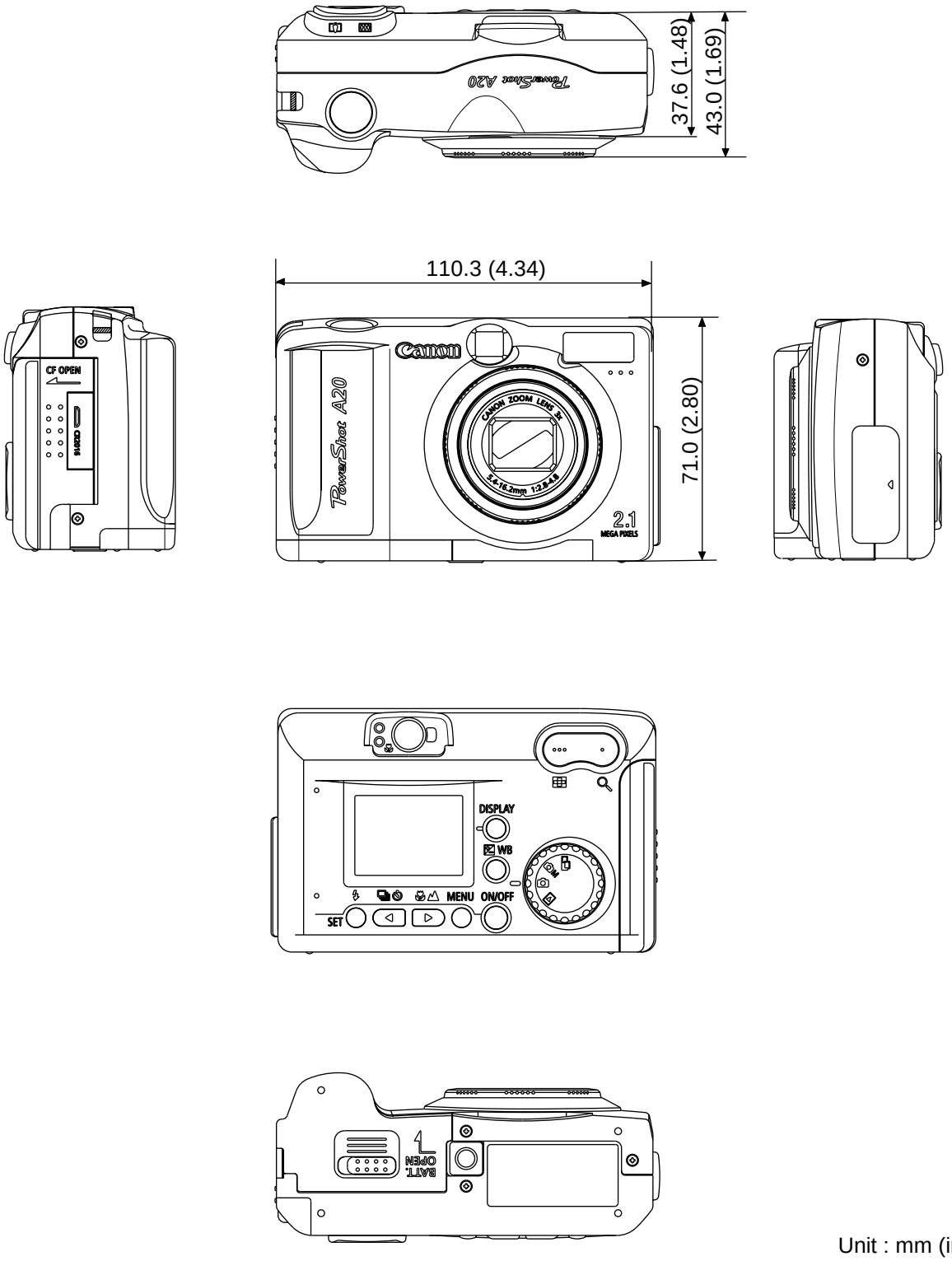
Photo 3-9 Size AA NiMH Rechargeable Battery Pack NB-1AH & Battery Charger NB-3AH

Cable

Photo3-10 Interface Cable IFC-300PCU

Photo3-11 Video Cable VC-100

3-2 6-dimensional diagrams

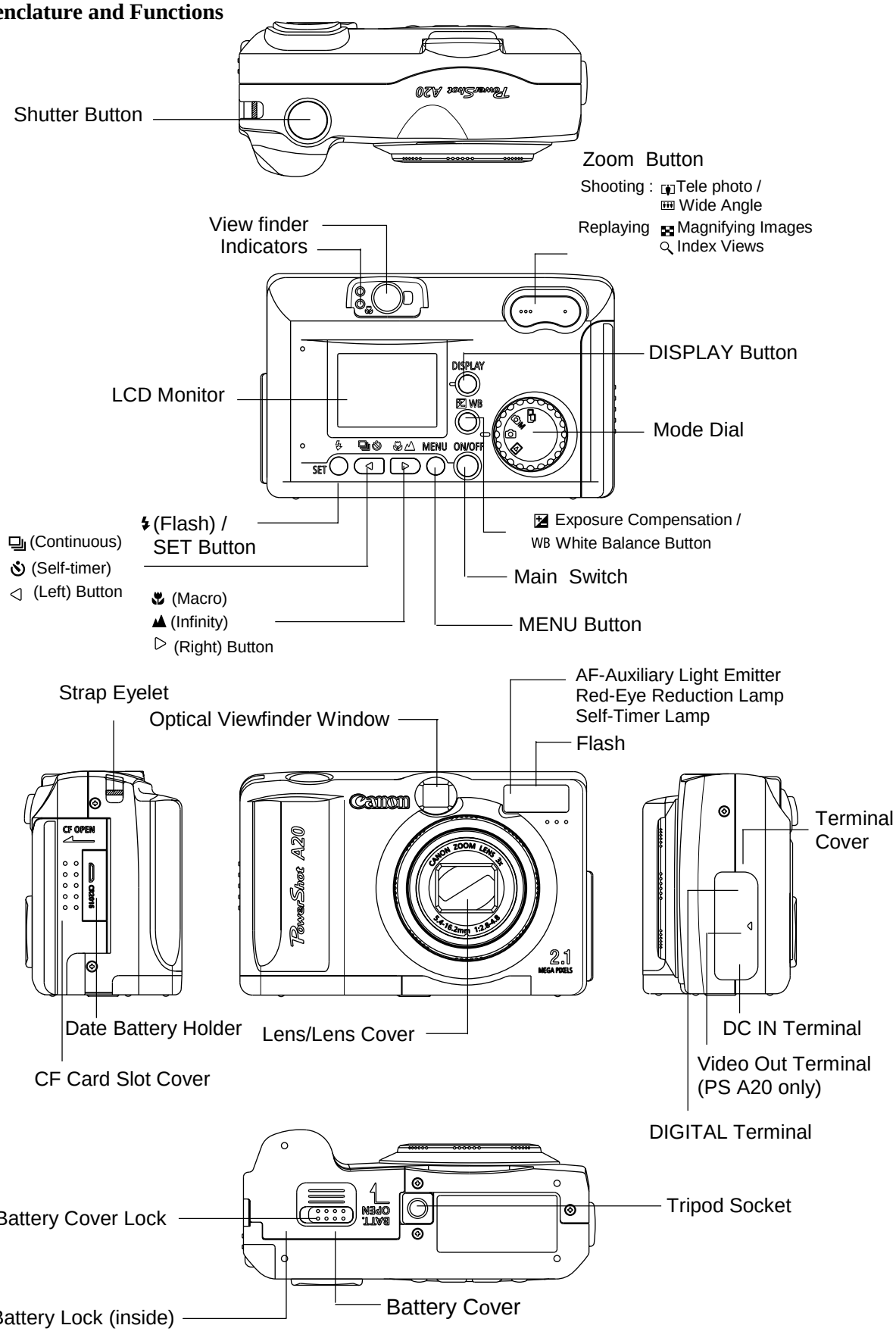


Unit : mm (in.)

Fig. 3-1 PowerShot A20's 6-dimentional views

* PowerShot A10's 6-dimentional views is same as PowerShot A20.

3-3 Nomenclature and Functions



3-4 User Interface display

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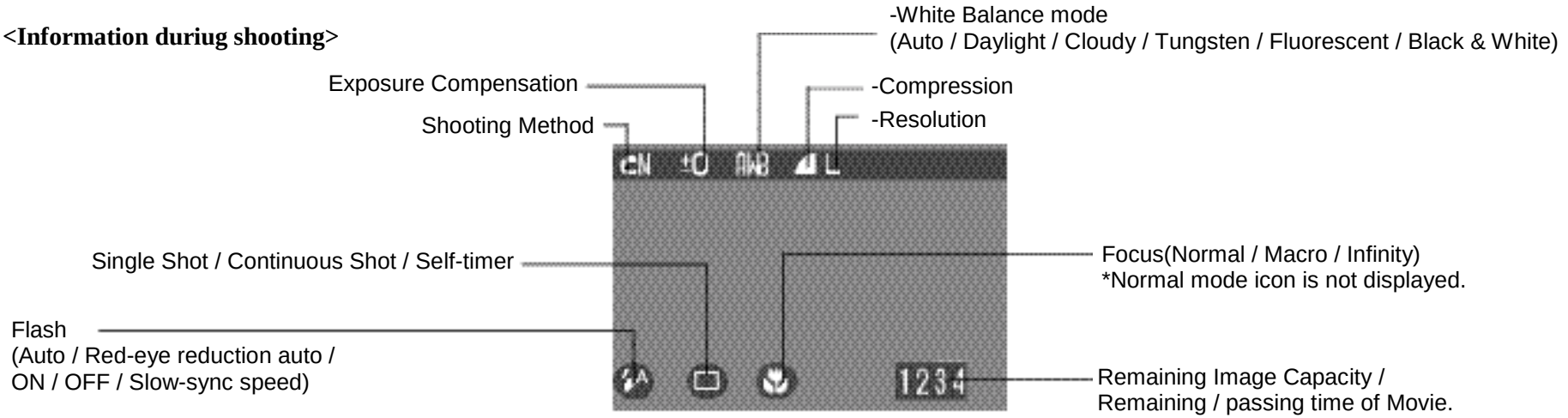
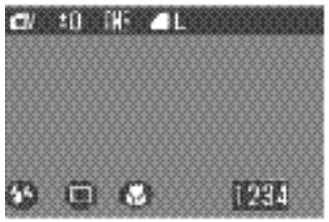

-White Balance mode
(Auto / Daylight / Cloudy / Tungsten / Fluorescent / Black & White)
Exposure Compensation
-Compression
Shooting Method
-Resolution
Single Shot / Continuous Shot / Self-timer
Focus(Normal / Macro / Infinity)
*Normal mode icon is not displayed.
Flash
(Auto / Red-eye reduction auto /
ON / OFF / Slow-sync speed)
1234
Remaining Image Capacity /
Remaining / passing time of Movie.

<Setting display>

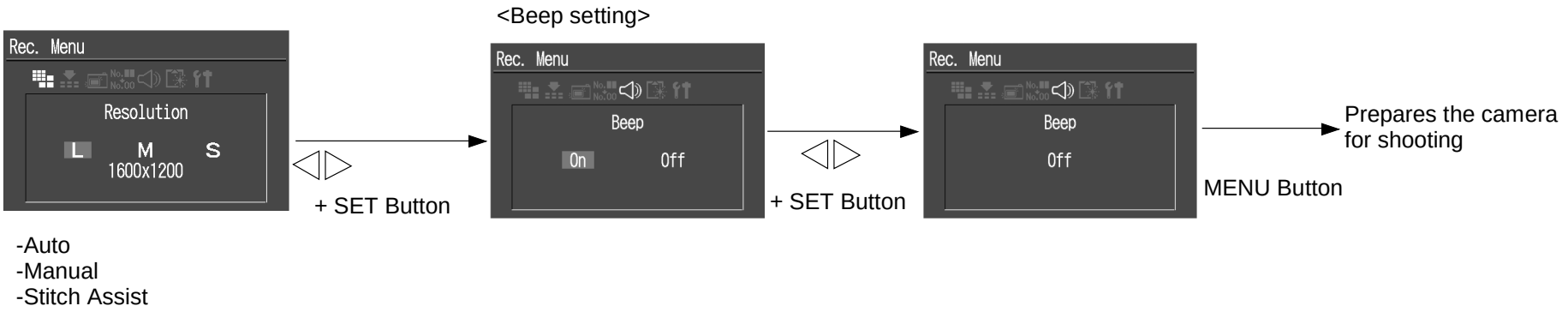


-Auto
-Manual
-Stitch Assist

MENU Button

-Review (OFF / 2 sec.[Default] / 10 sec.)
-File No. reset (ON / OFF [Default])
-Beep (ON[Default] / OFF)
-Format (CF)
-Compression (Superfine /
Fine [Default] / Normal)
Setting
-Auto Power Down (ON [Default] / OFF)
-Date/Time (set the date and time / Style)
-Video System (NTSC/PAL)
-Language
(English / Deutsch / Francais / Espanol /
Japanese [NTSC version])
(English / Deutsch / Francais / Nederlands /
Dansk / Suomi / Itliano / Norsk / Svenska /
Espanol [PAL version])
-Resolution
(Large [Default] / Medium / Small)

<Settings >



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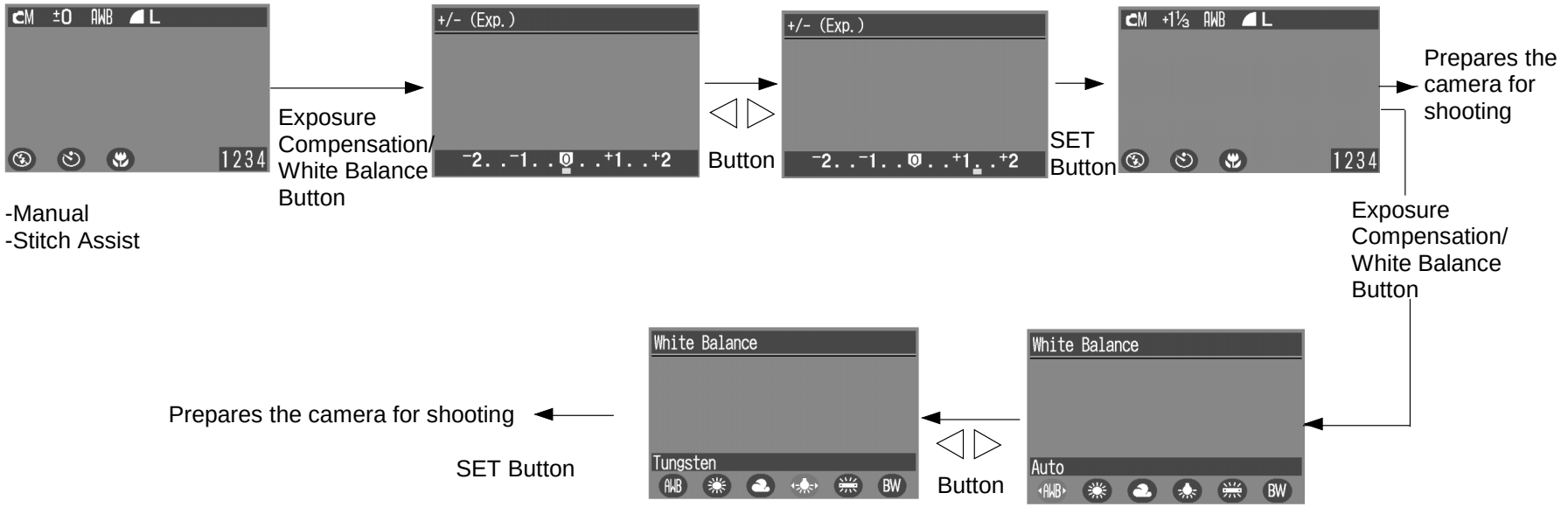

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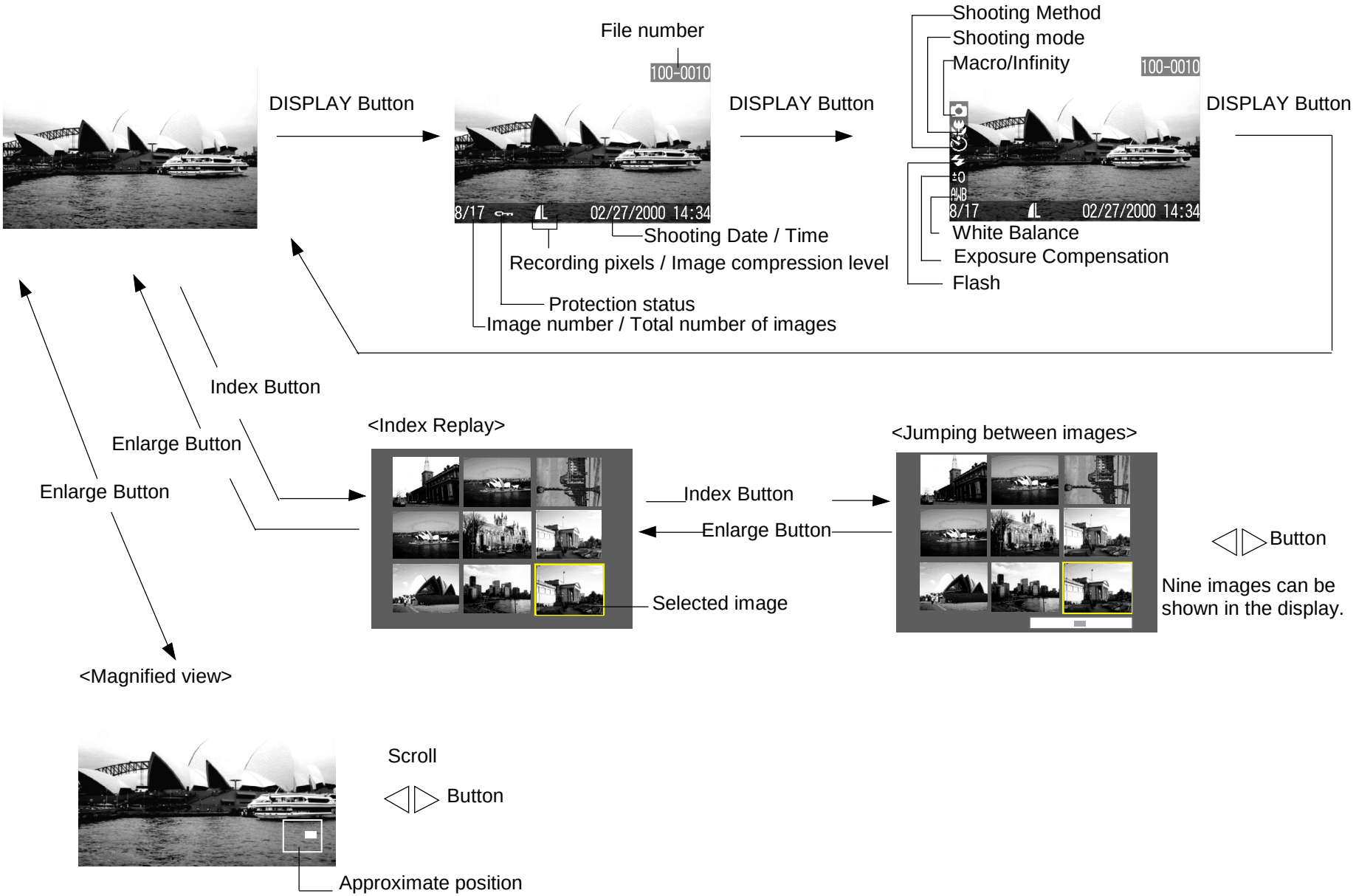
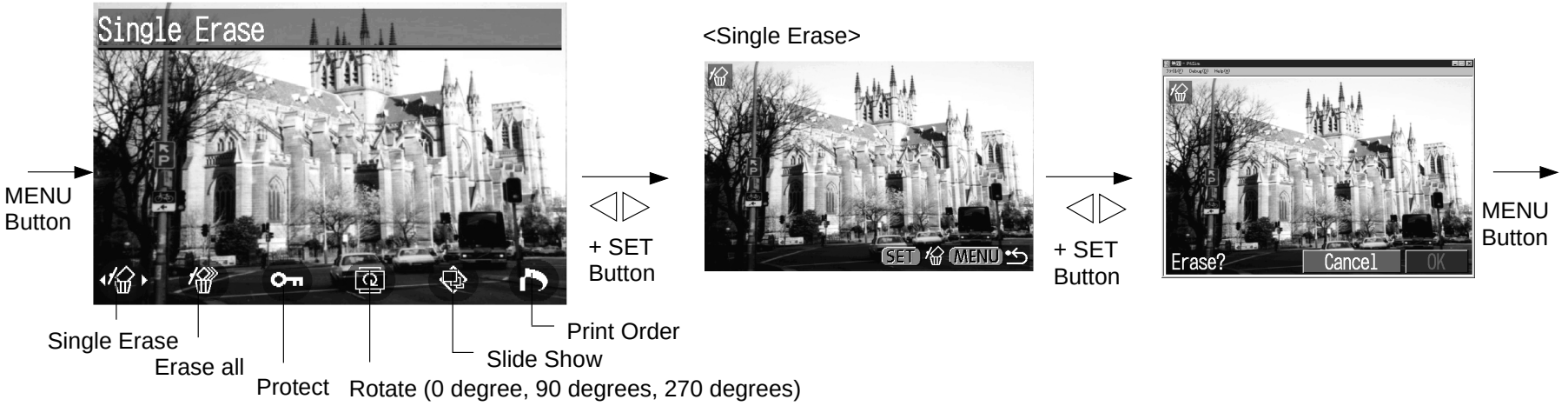
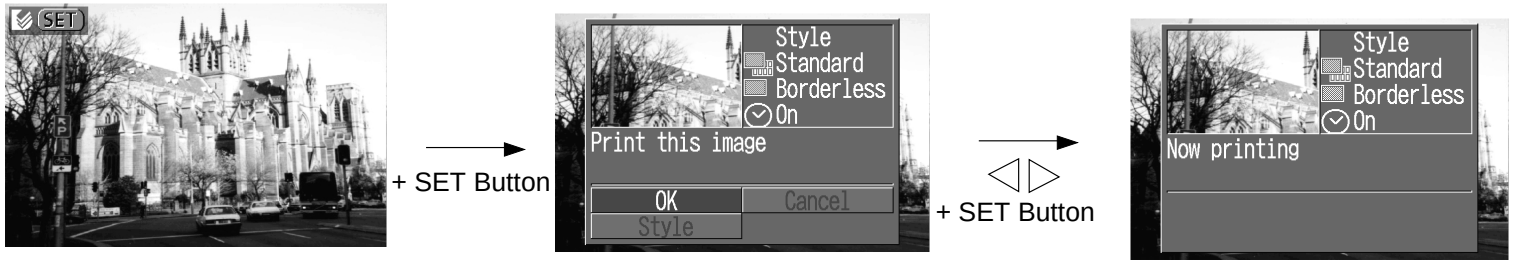

File number
100-0010
DISPLAY Button
DISPLAY Button
DISPLAY Button
Shooting Method
Shooting mode
Macro/Infinity
100-0010
8/17
02/27/2000 14:34
Shooting Date / Time
Recording pixels / Image compression level
Protection status
Image number / Total number of images
White Balance
Exposure Compensation
Flash
Index Button
Enlarge Button
Enlarge Button
<Index Replay>
<Jumping between images>
Index Button
Enlarge Button
Selected image
Button
Nine images can be shown in the display.
<Magnified view>
Scroll
Button
Approximate position

<Replay Menu>



<Direct Printing>

The following applies when the camera is set to the replay mode and connected to the Card Photo Printer CP-10.



4. Specifications

4-1 Camera specifications

<Image Sensor (CCD)>

	PowerShot A20	PowerShot A20
-Reading format	Interline	<<
-Chip size	5.36 (H) x 4.05 (V) mm (0.21) (0.16) (in.) equivalent to 1/2.7-inch	5.28 (H) x 3.97 (V) mm (0.21) (0.16) (in.) equivalent to 1/2.7-inch
-Unit cell size	3.275 (H) x 3.275 (V) micro mm (0.129) (0.129) (in.)	4.1 (H) x 4.1 (V) micro mm (0.16) (0.16) (in.)
-Total pixels	Approx. 2.11 million (1688 (H) x 1248 (V))	Approx. 1.32 million (1363(H) x 972 (V))
-Effective pixels	Approx. 2.02 million (1636 (H) x 1236 (V))	Approx. 1.25 million (1288(H) x 968 (V))
-Filter array	Primary-color Bayer filter	<<

<Lens>

-Focal length	5.4 (W) - 16.2 (T) mm (35 (W) - 105(T) mm 35mm film equivalent)
-f/number	2.8 (W) - 4.8 (T)
-Focusing range (Measured from top of lens barrel)	Normal AF : 76 cm (2.50 ft.) -infinity Macro AF : 16 cm (6.30 in.) (W) / 26cm (10.2 in.) (T) - 76 cm (2.53 ft.)
-Lens construction	7 groups 9 pieces

<Optical viewfinder>

-Type	Real-image optical zoom viewfinder (Primary image)
-Magnification	0.31 (W) - 0.93 (T)
-Coverage	W : Vertical : 80 % Horizontal : 80 % (When object is 2 m away.) T : Vertical : 80 % Horizontal : 80 % (When object is 2 m away.)

<LCD viewfinder>

-Type	Low-temperature polycrystalline silicon TFT color LCD
-Total pixels	119,548 pixels (490 (H) x 242 (V))
-Effective pixels	117,600 pixels (490 (H) x 240 (V))
-Display size	38 mm diagonal (1.5 inch)
-Coverage	100 %

<Focusing>

-Control system	TTL AiAF
-Focusing points	3 focusing points

<Exposure control>

-Light Metering method	Evaluative metering (linked to focus point)
-Exposure method	Program AE
-Exposure compensation	±2.0 EV (1/3-steps)

<Aperture and shutter>

-Shutter type	Mechanical shutter and electronic shutter
-Aperture range	f/2.7, f/4.8
-Shutter speed	1 - 1/1500 sec. (1~1/6sec. is available at Flash OFF / slow Syncro in MANUAL mode.)

<White balance>

-Mode — TTL auto white balance, pre-set white balance (available settings : Daylight, Cloudy, Tungsten, Fluorescent) , Black & White

< Flash (Built-in)>

- Operation modes — Auto, Red-eye reduction auto, ON or OFF
- Flash range — Normal AF : 76 cm (2.50) ~ 4.2 m (13.8) (W) / 76 cm (2.50 ft.) ~ 2.5 m (8.20 ft.) (T)
  Macro AF : 16 cm (6.30 in) ~ 76 cm (2.50 ft.) (W) / 26 cm (10.2 in.) ~ 0.76 m (2.50 ft.) (T)
- Flash sync. speed — Normal : 1/30sec. or higher, Slow sync. : All shutter speed
- Recycling time — 10 sec. or shorter (full flash, battery voltage = 6.0 V)

<Shooting specifications>

-Shooting modes — Auto/Manual/Stitch assist and Movie

-Continuous shooting — Approx. 2.5 images/sec. (at Large/Fine mode and LCD viewfinder is OFF)

-Self timer — Operates with approx. 10 seconds countdown.

-Sensitivity (Equivalent film speed) — PS A20/A10 : ISO 70 - 140 equivalent (Camera automatically adjusts ISO speed.)

-Digital zoom — PS A20 : 2.5 x (Maximum 7.5 x digital zoom is available when combined with optical zoom.)
PS A10 : 2.0 x (Maximum 6.0 x digital zoom is available when combined with optical zoom.)

-Shutter release from PC — Shutter release is enabled by using of "Remote Capture Software" (when USB connection)

-Release time lag — Approx. 0.05sec.

-Shooting interval — Approx. 1.7sec.

<Recording specifications>

-JPEG compression mode — Superfine, Fine or Normal

-Number of recording pixels — Large : 1600 x 1200 (PS A20), 1280 x 960 (PS A10)
Medium : 1024 x 768
Small : 640 x 480

- Image recording format — JPEG

- File format — Design rule for Camera File system (DCF *), Digital Print Order Format (DPOF) Version 1.1

* DCF is an abbreviation of Design rule for Camera File system standardized by Japan Electronic and Infomation Technology Industries Association (JEITA).

-Storage media — CompactFlash™ (CF) card (Type I)

-Storage capacity

PowerShot A20

	L/SF	L/F	L/N	M/SF	M/F	M/N	S/SF	S/F	S/N
File Size	957KB	611KB	302KB	450KB	294KB	155KB	208KB	141KB	79KB
FC - 8M	7	11	24	16	24	46	35	50	87
FC - 16M	15	24	48	32	49	92	70	99	172
FC - 30M	-	-	-	-	-	-	-	-	-
FC - 32M	31	49	99	67	102	189	143	206	353
FC - 48M	48	75	151	102	155	286	217	312	533
FC - 64M	64	100	200	135	205	379	288	415	707
FC -128M	128	200	401	272	412	760	577	831	1417

Above-written figures are measured under Canon™s standard conditions and may vary depending on the scene, subjects or camera settings.

PowerShot A10

	L/SF	L/F	L/N	M/SF	M/F	M/N	S/SF	S/F	S/N
File Size	693KB	450KB	228KB	450KB	294KB	155KB	208KB	141KB	79KB
FC - 8M	10	16	32	16	24	46	35	50	87
FC - 16M	21	32	64	32	49	92	70	99	172
FC - 30M	-	-	-	-	-	-	-	-	-
FC - 32M	43	67	131	67	102	189	143	206	353
FC - 48M	66	102	198	102	155	286	217	312	533
FC - 64M	88	135	263	135	205	379	288	415	707
FC -128M	177	271	528	272	412	760	577	831	1417

Above-written figures are measured under Canon™s standard conditions and may vary depending on the scene, subjects or camera settings.

-Tone reproduction — luminance signal : 8 bits, Color signal (Cr/Cb) : 8 bits

<Replay specifications>

-Replay modes — Single, Index (9 thumbnail images), Magnification or Slide show
Image output to ”Card Photo Printer PC-10” (Direct printing)

-Magnify — Approx. 2.5 x on built-in LCD monitor

-Vertical and horizontal conversion — Vertical and horizontal conversion can be set on each image. (Both LCD and Video Out play an image according to setting.)

<Erasing specifications>

-Erasing modes — Single image, all images (When “All images” is set, any images in the CF card captured with another camera or peripheral device (DCF format) are erased.
Regarding Canon digital cameras, images taken by the PowerShot 600/600N, the PowerShot 350, PowerShot A5, PowerShot A5 Zoom, PowerShot Pro70 will not be erased but those taken by PowerShot A50 (DCF only), PowerShot S10, PowerShot S20, IXY DIGITAL, Power Shot Pro90 IS and EOS D30 (DCF for-mat) will be erased.)
*Protected images are not erased.

<Interface>

-Computer I/F — USB (mini - B)

-A/V out (PS A20 only) — Video : NTSC or PAL selectable
Cable type : L-type plug (3.5mm dia.)

<Display specifications>

-Indicator (Upper LED) — -Lights in green : Indicates that the camera is ready with flash off.
-Blinks in green : Recording to CF card / Reading CF card / Erasing data on CF card
-Lights in orange: Indicates that the camera and flash are ready.
-Blinks in orange : Camera shake warning

-Indicator (Lower LED) — -Lights in yellow : SW1 ON in macro shooting

<Power Supply>

-Power sources	Primary battery :	Size AA Alkaline battery
	Secondary battery :	Size AA NiCd battery, Size AA NiMH battery (NB-1AH)
	Compact Power Adapter CA-PS500	
-Shooting capacity	Size AA Alkaline battery	LCD ON : Approx. 200 images
		LCD OFF : Approx. 500 images
	Size AA Alkaline battery	LCD ON : Approx. 350 images
		LCD OFF : Approx. 1000 images

Canon's standard conditions of measuring shooting capacity are as follows: Normal temperature (23 Celsius degrees). LCD viewfinder is ON. Shoot images at wide angle end and at telephoto end alternately with 20 seconds intervals. Use flash at every 4-time shootings.
Turn camera off and on at every 8-time shootings.

-Playback time

Size AA Alkaline battery : Approx. 240 min.
Size AA NiMH battery : Approx. 240 min.
Canon's standard conditions of measuring playback time are as follows: Normal temperature (23 Celsius degrees). Repeat playback automatically at a speed of 1 image per 3 seconds.

<Camera specifications>

-Operating temperature	0 - 40 C (32 - 104 F)
-Operating humidity	10 - 90%
-Dimensions (W x H x D)	110.3 x 71.0 x 37.6 mm (4.34 x 2.80 x 1.48 in.) (excluding protrusion)
-Weight	250 g (8.82 oz) (excluding batteries and CF card)

[Parameter availability by modes]

	AE(+/-)		WB		Flash					Drive			Digital zoom	
	0	Compen-sation	Auto	Pre-set	Red-eye auto	Auto	ON	OFF	Slow syncro	Single	Self timer	Continuous	OFF	ON
Auto	D	X	D	X	d	O	X	O	X	D	O	X	D	O
Manual	d	O	d	O	d	O	O	O	O	D	O	O	D	O
Stitch	d	△	d	△	X	X	△	D	△	D	△	X	D	X

	Focus			Recording pixels			Compression mode		
	AUTO	Macro	Infinity	L	M	S	SF	F	N
Auto	D	O	X	d	O	O	O	d	O
Manual	D	O	O	d	O	O	O	d	O
Stitch	D	△	△	d	△	△	△	d	△

D : Default (Takes effect when the respective mode is set.)
D : Factory default.
O : Selectable.
△: Selectable for the first picture only.
X : Not selectable.

Settings which are shaded remain in effect even after the camera is turned off

[Replay compatibility]

The following table shows the replay compatibility of images shot by PowerShot series cameras. The PowerShot A20/A10 supports up to 3200(H) x 2400(V) pixels as its main image resolution.

			Model Name (Playback)										
			PS 350	PS A5/A5 Z	PS Pro70	PS A50	PS S10/S20	IXY DIGITAL	PS G1	PS Pro90 IS	EOS D30	IXY DIGITAL 300	PS A10/A20
Mode name (Capture)	PS 350	CIFF	O	O	O	O	O	X	X	X	X	X	X
	PS A5/A5 Z	CIFF	△	O*1	O*1	O*1	O*1	X	X	X	X	X	X
	PS Pro70	CIFF	△	O*2	O*1	O*1	O*1	X	X	X	X	X	X
	PS A50	CIFF	△	O*2	O*1	O*1	O*1	X	X	X	X	X	X
		DCF	X	X	X	O*1	O*1	O*1	O*1	O*1	O*1	O*1	O*1
	PS S10/S20	DCF	X	X	X	O*3	O	O	O	O	O	O	O
	IXY DIGITAL	DCF	X	X	X	O*3	O	O	O	O	O	O	O
	PS G1	DCF	X	X	X	O*3*1	O*4*1	O*4*1	O	O	O	O*4*1	O*4*1
		AVI	X	X	X	X	X	X	O	O	X	O	▲
	PS Pro90 IS	DCF	X	X	X	O*3*1	O*4*1	O*4*1	O	O	O	O*4*1	O*4*1
		AVI	X	X	X	X	X	X	O	O	X	O	▲
	EOS D30	DCF	X	X	X	O*3*1	O*4*1	O*4*1	O	O	O	O*4*1	O*4*1
	IXY DIGITAL 300	DCF	X	X	X	O*3	O	O	O	O	O	O	O
		AVI	X	X	X	X	X	X	O	O	X	O	▲
	PS A10/A20	DCF	X	X	X	O*3	O	O	O	O	O	O	O
	DCF model from other companies	DCF	X	X	X	O*3	O*4*1	O*4	O*4	O*4	O*4	O*4	O*4

O : Replayable
△ : Replay of images in RAW mode not possible
▲ : Thumbnail display of AVI (main image with thumbnail (.thm) only)
X : Not replayable
*1 : Thumbnail display of RAW mode images
*2 : Thumbnail display of RAW mode images. JPEG file replay up to 1,024 x 768 pixels
*3 : Only JPEG file replay
Replayable up to 1,632 x 1,232 pixels. Thumbnail display (160 x 120) of images exceeding that size. “Image too large” message displayed when too big.
*4 : Only JPEG file replay
Replayable up to 3,200 x 2,400 pixels. Thumbnail display (160 x 120) of images exceeding that size. “Image too large” message displayed when too big.
*5 : Not replayable up to fixed file size. “Image too large” message displayed.
*6 : Not replayable up to fixed movie shooting time. “Corrupted data” message displayed.

Since the PowerShot G1/Pro90 IS/EOS D30’s RAW has an internal JPEG file for playback, a full-screen image is displayed.
However, if the RAW from the PowerShot A50 and older models is played back with the PowerShot G1/Pro90 IS/EOS D30, thumbnails will be displayed.

4-2. System requirements (Canon Digital Camera Solution Disk 2.0 is required for installing software)

[Microsoft Windows ® 95, Windows ® 98, WindowsNT ® 4.0 and Windows ® 2000]

-Computer Model	IBM PC/AT or compatible	
-OS	Microsoft Windows® 95, Windows® 98 (including Second Edition), Windows® Me, Windows NT® 4.0 (Service Pack 3 or higher) and Windows® 2000	
-CPU	Pentium 133MHz or better. (Windows Me : Pentium 150 MHz or better)	
-RAM	32MB RAM minimum for Windows 95 and Windows 98. 64MB RAM minimum for Windows Me, Windows NT 4.0 and Win-dows 2000.	
-Hard disk space	Canon Utilities	
	ZoomBrowser EX (include PhotoRecord)	120MB
	PhotoStitch	40MB
	RemoteCapture	20MB
	Canon Digital Camera USB TWAIN Driver (for Windows 98 / Windows 2000)	15MB
	Canon Digital Camera USB WIA Driver (for Windows ME)	25MB
-Interface	USB (Windows 98 / Windows Me / Windows 2000 pre-install model and upgraded model from Windows 98 pre-install model to Windows Me).	
-Display	800 x 600 pixels - 256 colors minimum, 1024 x 768 pixels - 16-bit color or more recommended.	
-Sound card	Playing back sound tracks from movie files requires.	

Playing back movie files* and / or using QuickTime VR function requires QuickTime 3.0 or higher. (QuickTime 4.1 is in the CD-ROM “Digital Camera Solution Disk” included in this package.)

*Shooting movie and recording sound are not available on PowerShot A20/A10.

[Macintosh]

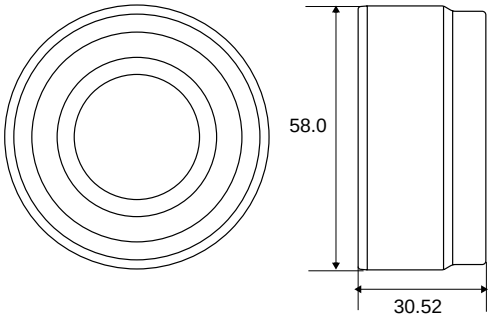
-Computer Model	Power Macintosh, PowerBook, iMac or iBook	
-OS	Mac OS 8.1 or higher (without Mac OS X), QuickTime 3.0 or higher (QuickTime 4.1 is in the CD-ROM “Digital Camera Solution Disk” included in this package.)	
-CPU	PowerPC	
-RAM	20MB RAM minimum for application memory.	
-Hard disk space	Canon Utilities	
	ImageBrowser	20MB
	PhotoStitch	30MB
	RemoteCapture	15MB
	Canon Digital Camera Plug-In Module	15MB
-Interface	USB (iMac, iBook and Power Macintosh NEW G3 / Power Macintosh G4 or PowerBook G3 with Apple genuine USB interface only. iMac Update 1.0 and iMac Firmware Update 1.0 must be installed for use in your iMac computer under Mac OS 8.1.).	
-Display	800 x 600 pixels - 256 colors minimum, 1024 x 768 pixels - thousands of colors or more recommended.	

Plug-In Module requires Adobe Photoshop ® 3.0 or higher (Retouch software (T.B.D.)is included in this package).

4-3 Specifications of Major Accessories

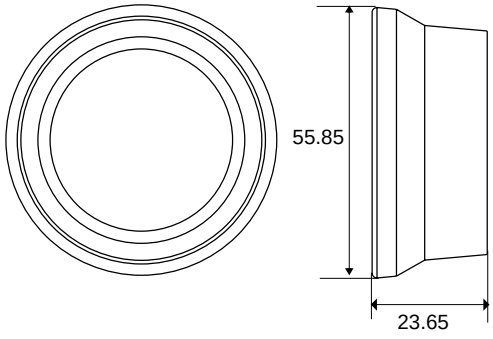
● **Wide Converter WC-DC52**

- Magnification : Approx. 0.7x (With PS A20/A10: 24.5mm in 35mm format)
- Lens construction : 2 elements in 2 groups (Multiple-coat finish on all surfaces)
- Focusing distance : Same as focusing distance of the master lens.
- Dimensions : See Fig. 4-2.
- Weight : 74g (2.6oz)
- Thread size : 52mm dia. (Attached via Converter Lens Adapter)



Unit : mm (inch)

Fig. 4-2 Wide Converter WC-DC52



Unit : mm (inch)

Fig. 4-3 Conversion Lens Adapter LA-DC52.

● **Conversion Lens Adapter LA-DC52**

- Dimensions : See Fig. 4-3.
- Weight : 13g (0.46oz)
- Attachment method : After removing the ring from the front of the lens barrel by attached dust-cap (made of rubber), the adapter is screwed on.

● Compact Power Adapter CA-PS500

- Rated input : 100 - 240 V AC (50/60 Hz), 0.17A
- Rated output : 4.3 V DC, 1.5 A
- Ambient temperature : 0 - 40 ºC
- Dimensions : 42.5 (1.67) x 104.4 (4.11) x 31.4 (1.27) mm (inch) (adapter only)
- Weight : Approx. 180 g (6.35 oz)

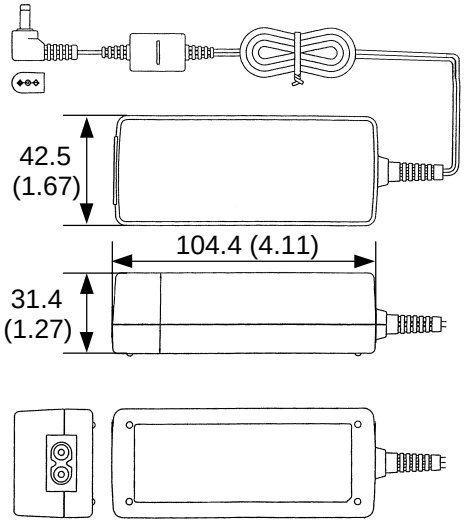
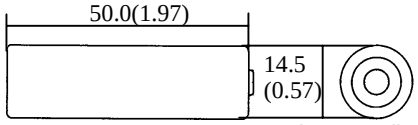


Fig. 4-4 Compact Power Adapter CA-PS500

Unit : mm (inch)

● **Ni-MH Battery NB-1AH**

- Type : Size-AA Ni-MH battery (rechargeable)
- Voltage : 1.2 V DC
- Capacity : 1600 mAH (1550 mAH: min.)
- Charging time : Approx. 110 min. for 1 or 2 batteries, approx. 220 min. for 3 or 4 batteries (with Battery Charger CB-3AH)
- Ambient temperature : 0 - 40 ºC
- Dimensions : Approx. 14.5 (0.57) dia. x 50 (1.97) mm (inch)
- Weight : Approx. 27 (0.95 oz) g



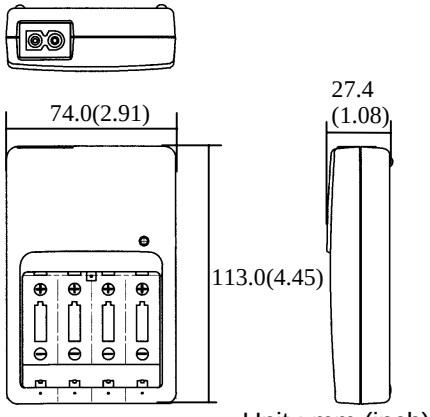
Unit : mm (inch)

Fig. 4-5 NiMH Battery NB-1AH

● **Battery Charger CB-3AH**

- Rated input : 100 - 240 V AC (50/60 Hz)*, 8 W
- Rated output : Charging current 0.92 A (average for 1 or 2 batteries), 0.46 A (average for 3 or 4 batteries)
- Charging time : Approx. 110 min. for 1 or 2 batteries, approx. 220 min. for 3 or 4 batteries
- Charging indicator : During charging : Orange lamp blinks
  Charging completed: Orange lamp lights
- Ambient temperature : 0 - 40 ºC (0 - 35 ºC recommended)
- Dimensions : Approx. 113 (4.45) x 74 (2.91) x 27.4 (1.08) mm (inch)
- Weight : Approx. 100 (3.53) g (oz)

* In the US, it will be 120 VAC (60 Hz).



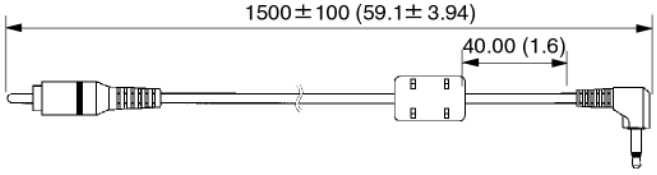
Unit : mm (inch)

Fig. 4-6 Battery Charger CB-3AH

● **Video Cable VC-100**

- RCA pin plug - 3.5mm dia. monaural plug
- The dimensions are shown in Fig. 4-7.

Also compatible with the PowerShot A5, A5 Zoom, A50, Pro70, S10, and S20.

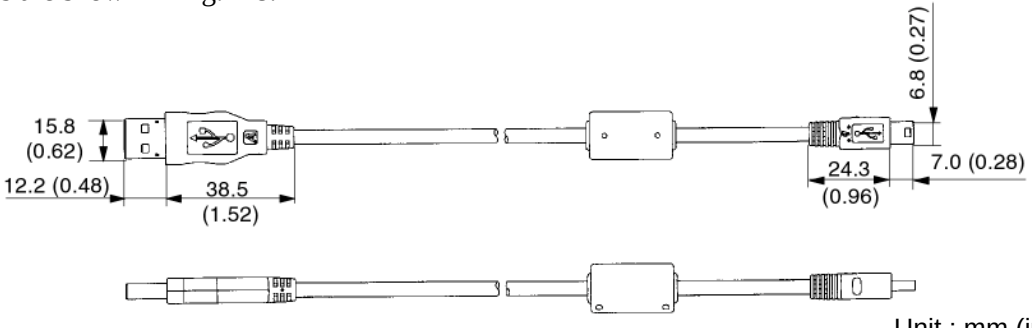


Unit : mm (inch)

Fig. 4-7 AV CABLE VC-100

● **Interface Cable IFC-300PCU**

- USB Series A 4-pin connector - Series mini - B 5-pin connector
- The dimensions are shown in Fig. 4-8.

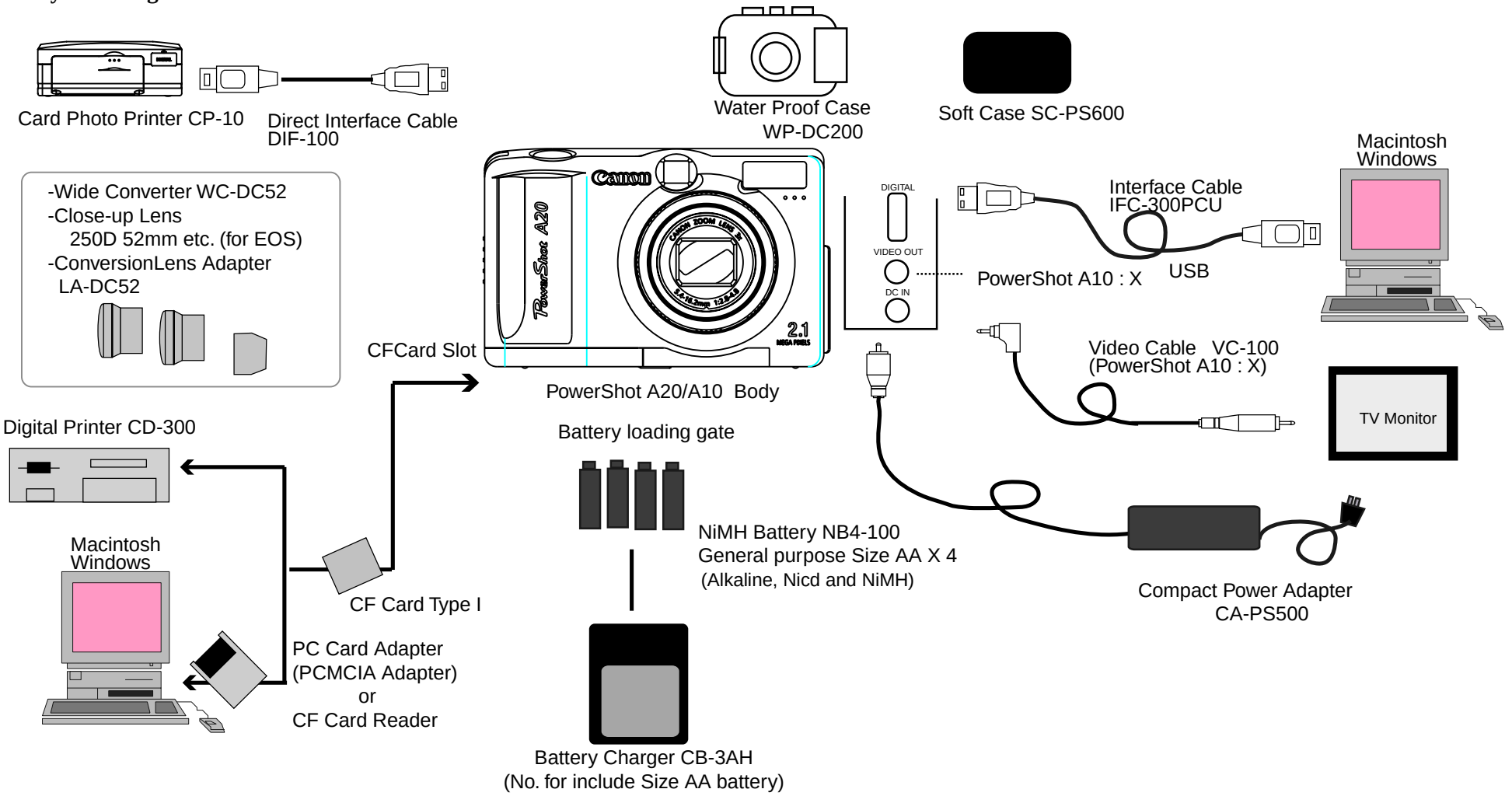


Unit : mm (inch)

Fig. 4-8 Interface Cable IFC-300PCU

5. System

5-1 System Diagram



5-2 Accessory compatibility

	PS A20 PS A10	IXY DIGITAL 300	IXY DIGITAL DIGITAL IXUS PS 100 DIGITAL ELPH	PS Pro 90 IS	PS G1	PS S10 PS S20	PS Pro70	PS A5 Z PS A50	PS A5
<Battery>									
NB-5H	-	-	-	-	-	O	-	O	O
NB-4H	-	-	-	-	-	-	O	-	-
NB-1L	-	O	O	-	-	-	-	-	-
BP-511	-	-	-	O	O	-	-	-	-
NB4-100	O	-	-	-	-	-	-	-	-
Adapter/Charger>									
CA-PS 100/100E	-	-	-	-	-	O	-	O	O
CA-PS200	-	-	-	-	-	-	O	-	-
CA-PS300	-	-	O	-	-	-	-	-	-
CA-PS500	O	O	-(O)*	-	-	-	-	-	-
CA-560	-	-	-	O	O	-	-	-	-
CR-560	-	-	-	O	O	-	-	-	-
CB-2L/2LE	-	-	O	-	-	-	-	-	-
CB-2LS/2LSE	-	O	-	-	-	-	-	-	-
CB-3AH	O	-	-	-	-	-	-	-	-
CBK-100	O	-	-	-	-	-	-	-	-
<DC Coupler>									
DR-100/100A	-	-	-	-	-	O	-	O	O
DR-200	-	-	-	-	-	-	O	-	-
DR-300	-	-	O	-	-	-	-	-	-
DR-500	-	O	-	-	-	-	-	-	-
<Lens accessory>									
WC-DC58	-	-	-	O	O	-	-	-	-
WC-DC52	O	-	-	-	-	-	-	-	-
TC-DC58	-	-	-	-	O	-	-	-	-
250D 58mm	-	-	-	-	O	-	-	-	-
500D 58mm	-	-	-	O	-	-	-	-	-
250D 52mm	O	-	-	-	-	-	-	-	-
LA-DC58	-	-	-	-	O	-	-	-	-
LA-DC52	O	-	-	-	-	-	-	-	-
LH-DC59	-	-	-	O	-	-	-	-	-
<Spped lite>									
220EX	-	-	-	O	O	-	O	-	-
380EX	-	-	-	O	O	-	O	-	-
550EX	-	-	-	O	O	-	-	-	-
420EX	-	-	-	O	O	-	-	-	-

*Change from CA-PS300 to from CA-PS500 after release of IXY DIGITAL 300

Table 5-1 Accessory compatibility-1

	PS A20 PS A10	IXY DIGITAL 300	IXY DIGITAL DIGITAL IXUS PS 100 DIGITAL ELPH	PS Pro 90 IS	PS G1	PS S10 PS S20	PS Pro70	PS A5 Z PS A50	PS A5
<Remote switch>									
WL-DC100	-	-	-	O	O	-	-	-	-
RS-8N3	-	-	-	-	-	-	O	-	-
<Cable etc.>									
VC-100	O*	-	-	-	-	O	O	O	O
VC-200	-	-	O	-	-	-	-	-	-
AVC-DC100	-	O	-	O	O	-	-	-	-
IFC-100PCS	-	-	-	-	-	-	O	O	O
IFC-100MC	-	-	-	-	-	-	O	O	O
IFC-200PCS	-	-	-	O	O	O	-	-	-
IFC-200PCU	-	-	O	O	O	O	-	-	-
IFC-200MC	-	-	-	O	O	O	-	-	-
IFC-300PCU	O	O	-	-	-	-	-	-	-
AD-PC98	-	-	-	O	O	O	O	O	O
*PowerShot A20 only									
<Case>									
SC-PS100	-	-	-	-	-	O	-	O	O
SC-PS300	-	-	O	-	-	-	-	-	-
SC-PS400	-	-	-	-	O	-	-	-	-
SC-PS500	-	O	-	-	-	-	-	-	-
SC-PS600	O	-	-	-	-	-	-	-	-
SHC-PS200	-	-	-	-	-	-	O	-	-
SHC-PS300	-	-	-	O	-	-	-	-	-
<All Weather Case/Water Proof Case>									
AW-PS100	-	-	-	-	-	-	-	-	O
AW-PS110	-	-	-	-	-	-	-	O	-
AW-PS200	-	-	O	-	-	-	-	-	-
WP-DC100	-	O	-	-	-	-	-	-	-
WP-DC200	O	-	-	-	-	-	-	-	-

Table 5-2 Accessory compatibility-2

CHAPTER 2. TECHNICAL DESCRIPTION

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   - 1.1 MAIN PCB ASS'Y ---------- 2-1
   - 1.2 DC/DC PCB ASS'Y ---------- 2-1
   - 1.3 FLASH UNIT ---------- 2-1
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   - 2.2 Signal Processing ---------- 2-3
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3. Troubleshooting
   - 3.1 When an Error Code is Displayed ---------- 2-5
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1. Functions of each unit

1.1 MAIN PCB ASS'Y

1) Driving the CCD Sensor.
2) Conversion of the image signal from the analog signal to the digital signal.
3) Controlling the power supply and the system by CPU. (Refer to Sections 2.1 and 2.2.)
4) Image processing, and reading and writing the image signal to and from the CF card using DSP. (Refer to Section 2.2.2.)
5) LCD drive and amplification of the video output. (A20 model only) (Refer to Section 2.2.2.)

1.2 DC/DC PCB ASS'Y

1) Power supply drive (DC/DC converter).
2) Backlight for LCD drive.

1.3 FLASH UNIT

1) Flash drive and charging circuit for the flash.

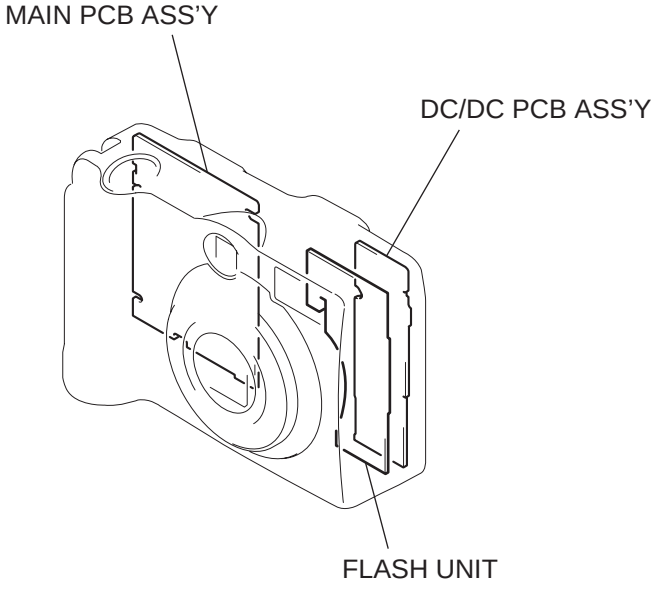

Fig. 1

2. Outline of Circuits

2.1 Power Supply Control

The power supply is controlled by the CPU mounted on the main PCB ass'y.

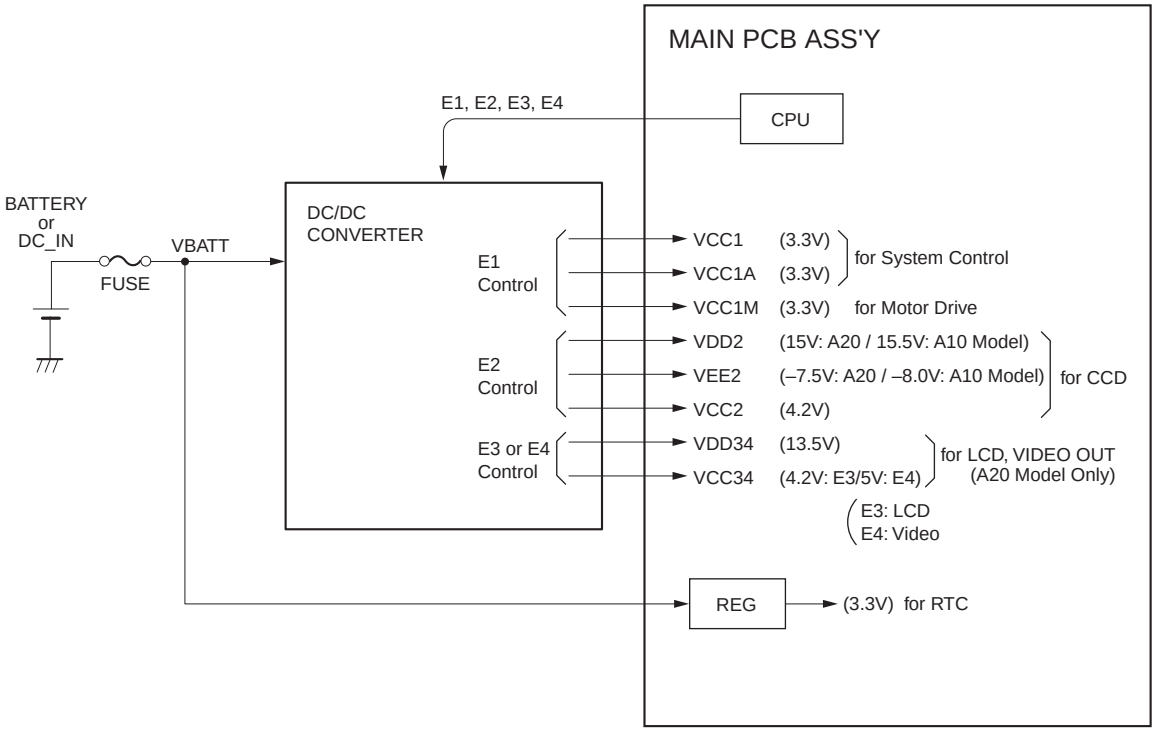

Fig. 2 Power System Block Diagram

2.2 Signal Processing

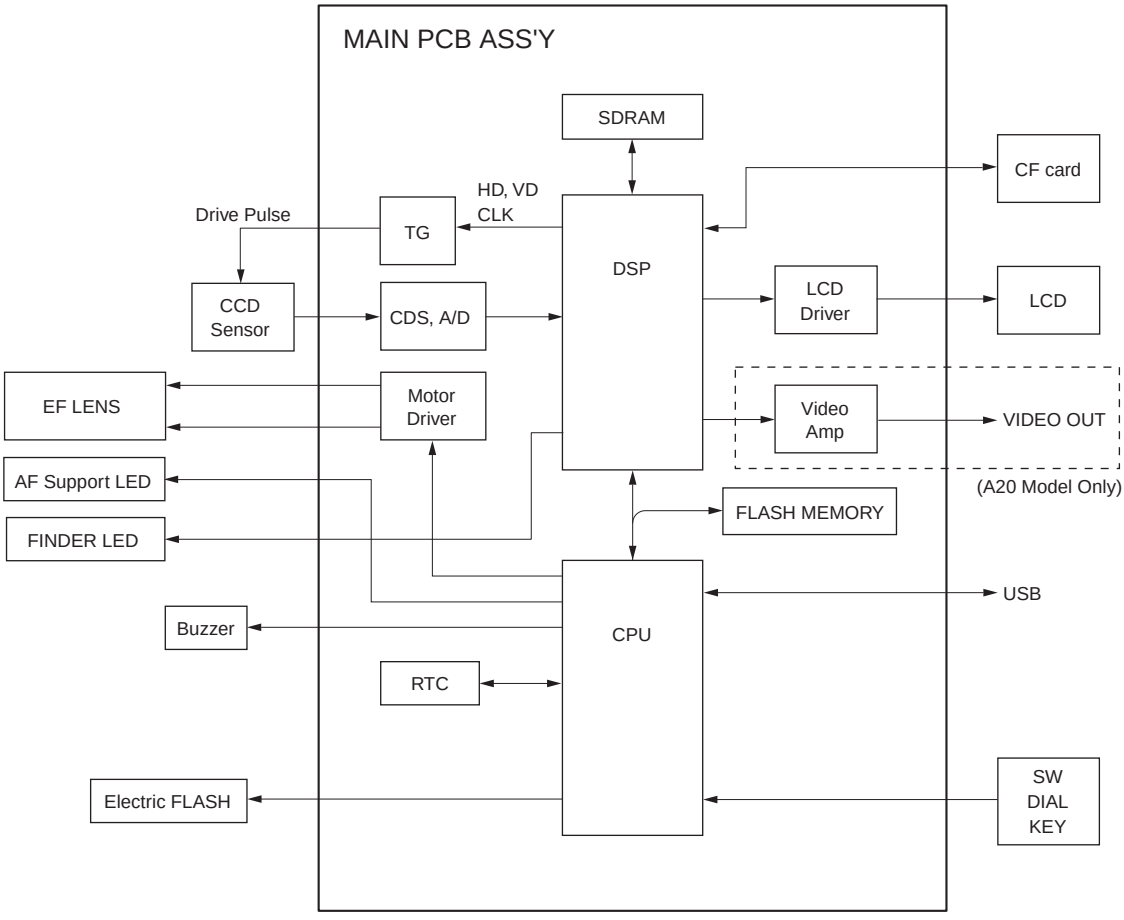

Fig. 3 Signal System Block Diagram

2.2.1 System Control

The CPU on the main PCB ass'y controls the EF lens (motor, shutter), operation switch receiver, USB communication and flowing circuits.

- TG: Creation of the CCD drive pulse
- CDS, A/D: CCD signal processing and conversion of the digital data
- LCD Driver: Driving the LCD
- FLASH MEMORY: Firmware memory
- DSP: Picture processing
- RTC: Clock count for watch
- AF Support LED: AF auxiliary, self-timer and red-eye protection also serves as a lamp
- Electric Flash: Flash and charging circuit

2.2.2 Picture Processing

Note: The VIDEO OUT is installed in the A20 model only.

1) The drive pulse of the CCD sensor is created by both clock from DSP and TG that is operated by sync. signal.
   The picture signal by the drive pulse is output from CCD sensor.
   The output signal of the CCD picture is converted to the signal processing and the digital data by the CDS and A/D converter, and is sent to the DSP.

2) The DSP circuit performs the following signal processing.
   - Processes the picture data (using the SDRAM).
   - Writes and reads the picture data to and from the CF card.
   - Outputs the picture data to the CPU.
   - Outputs analog video signal to the LCD and VIDEO OUT.

3) The video signal that is supplied form the DSP is controlled by the LCD driver and is displayed on the LCD. The video amplifier is activated when the video jack is inserted to the video jack and drives the video signal in 75 Ω.

3. Troubleshooting

3.1 When an Error Code is Displayed

[Remedy]

- Check for any abnormalities in the mounting of probable faulty parts or connector connections referring to the table below.
- Try replacing probable faulty parts referring to the below.

[NOTE]

- The error code is displayed on the LCD Monitor.
- Adjustments must be performed after the part has been replaced. For details, see the chapter of "Adjustments".

Error Code	Name	Occurrence Conditions	Cause and Probable Faulty Part
E02	AF TIME OUT	AF processing did not end within the specified time.	MAIN PCB ASS'Y
			OPTICAL UNIT
		The focus lens was not driven.	MAIN PCB ASS'Y
			OPTICAL UNIT
E03	EF TIME OUT	Auto Flash Control did not end within the specified time.	MAIN PCB ASS'Y
			OPTICAL UNIT
E09	JPEG DMA TIME OUT	JPEG processing did not end within the specified time.	MAIN PCB ASS'Y
E18	ZOOM LENS ERROR	Movement of the lens barrel did not end within the specified time.	MAIN PCB ASS'Y
			OPTICAL UNIT
E23	CF NO SPACE	When the CF becomes full during writing of photographed images to CF, writing is repeatedly performed with the JPEG compression ratio successively increased to reduce the size of the image file until it can be successfully written to CF. This error occurs when writing of the JPEG image file fails after 10 retries at increasingly higher compression ratios.	MAIN PCB ASS'Y
E24	POWER ON ERROR	The power of the imaging circuit on the MAIN PCB ASS'Y was not detected.	MAIN PCB ASS'Y
			DC/DC PCB ASS'Y
E25	FOCUS PI ERROR	Detection of the focus PI (photo-interrupter) failed.	OPTICAL UNIT
			MAIN PCB ASS'Y
E26	CAPTURE TIME OUT	Writing of the photograph image to SDRAM did not end within the specified time.	MAIN PCB ASS'Y

Error Code	Name	Occurrence Conditions	Cause and Probable Faulty Part
E27	CF WRITE TIME OVER	Free area could not be secured in the buffer for the photograph image within the specified time in the continuos shooting mode.	CF CARD
			MAIN PCB ASS'Y
E30	POWER OFF ERROR	The camera power was turned OFF while the image was being recorded to the CF Card. (The error code is displayed when the camera is next turned ON.) * This error may occur after E23.	The battery or DC plug was removed while the image was being recorded to the CF Card. → Remedy: Restart the camera.
E50	CF FORMAT ERROR	The CF Card could not be formatted properly.	CF CARD
E52	QUICK REVIEW ERROR	Review of the photograph image failed.	MAIN PCB ASS'Y

3.2 When a Problem Occurs

[Remedy]

- Check for any abnormalities in the mounting of probable faulty parts or connector connections referring to the table below.
- Try replacing probable faulty parts referring to the table below.

[NOTE]

- Adjustments must be performed after the part has been replaced. For details, see the chapter of "Adjustments".

Problem (when an error code is not displayed)	Cause and Probable Faulty Part
The camera does not work.	MAIN PCB ASS'Y
	REAR COVER UNIT
	DC/DC PCB ASS'Y
	BATTERY BOX UNIT
The image is not displayed on the LCD Monitor.	MAIN PCB ASS'Y
	BUTTON PCB ASS'Y
	LCD PANEL
	BACK LIGHT UNIT
The photograph image is abnormal.	OPTICAL UNIT
	MAIN PCB ASS'Y
The zoom does not function.	OPTICAL UNIT
	MAIN PCB ASS'Y
	BATTERY BOX UNIT
	REAR COVER UNIT
The Built-in Flash does not fire.	FLASH UNIT
	DC/DC PCB ASS'Y
Video output is strange.	MAIN PCB ASS'Y
Communications with the personal computer is not possible.	MAIN PCB ASS'Y
The CF card or Micro Drives is not recognized.	CF CARD
	REAR COVER UNIT
	MAIN PCB ASS'Y
Buttons/The Mode dial do not work.	REAR COVER UNIT
	RLS PCB ASS'Y

CHAPTER 3. REPAIR INSTRUCTION

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1. Before Starting the Repair Work

Be sure to read the following precaution before starting the repair work.

1.1 Precaution on Flash High Tension Circuit

- When the FRONT COVER UNIT is removed, be sure to discharge the main capacitor. (Discharging resistor: 1 k ohms, approx. 5 W.)
- First contact the GND ⊖ terminal of the main capacitor with the discharging resistor. Then contact the positive ⊕ terminal of the main capacitor.

CAUTION:
Be careful of electric shock because the circuit is the high tension circuit.

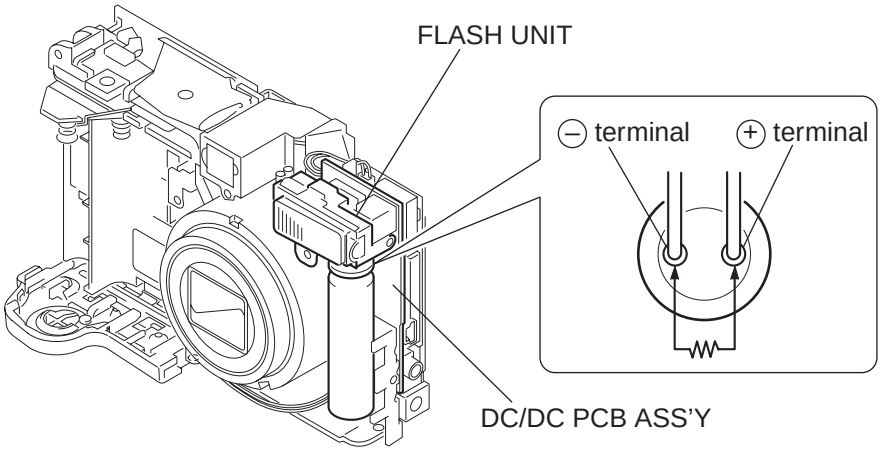


Fig. 3-1 Precaution on flash high tension circuit

1.2 List of Tools

The following tools are used for the re-assembling during service.

(1) List of tools

New	Name of tools	Part No.	Areas where supplies are used
	DRIVER HANDLE	CY9-7014-00	CCD UNIT
*	BIT, HAND DRILL	CY9-1548-000	CCD UNIT

1.3 List of Supplies

The following supplies are used for the re-assembling during service.

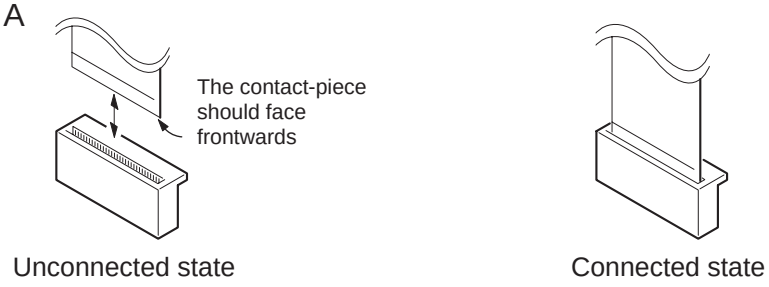
(1) List of supplies

New	Name of supplies	Part No.	Areas where supplies are used
	DIA BOND 1663G	CY9-8129-000	Attaching the parts together
	ADHESIVE TAPE, SONY T4000	CY4-6012-000	Fixing the flexible cable
	ADHESIVE TAPE, 3M NO.56	CY4-6018-000	DC/DC SHIELD CASE 1

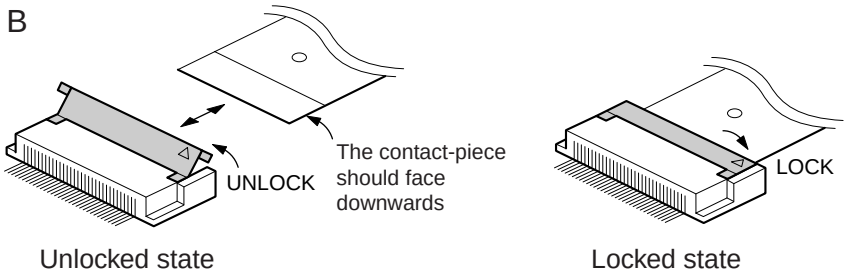
1.4 Flexible Connectors

This product uses the four types of the flexible connectors.

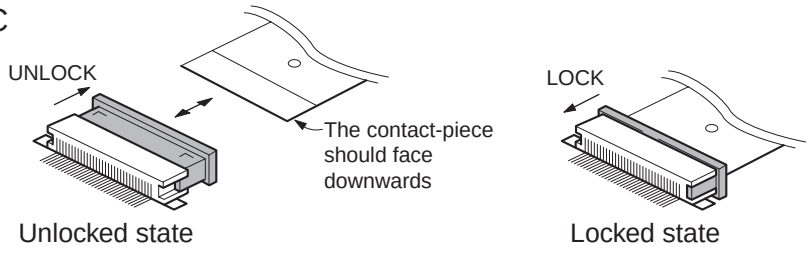
① Type A



② Type B



③ Type C



④ Type D

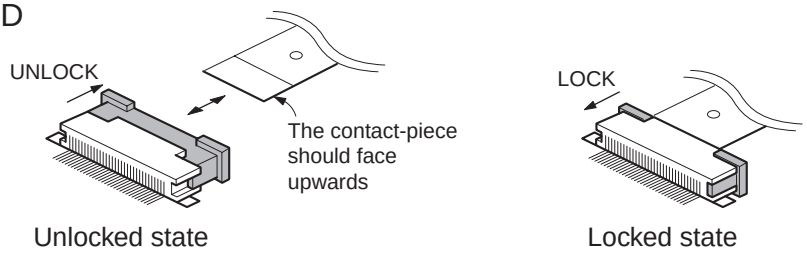


Fig. 3-2 Flexible connectors

CAUTIONS:

1. For the connectors of Type B, Type C and Type D, set them to the unlocked state before removing and inserting flexible card. After flexible card is inserted, set them to the locked state.
2. The flexible card is equipped with the holes as shown. Use them for removal and insertion by inserting the tweezers into them as required.

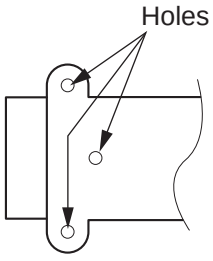
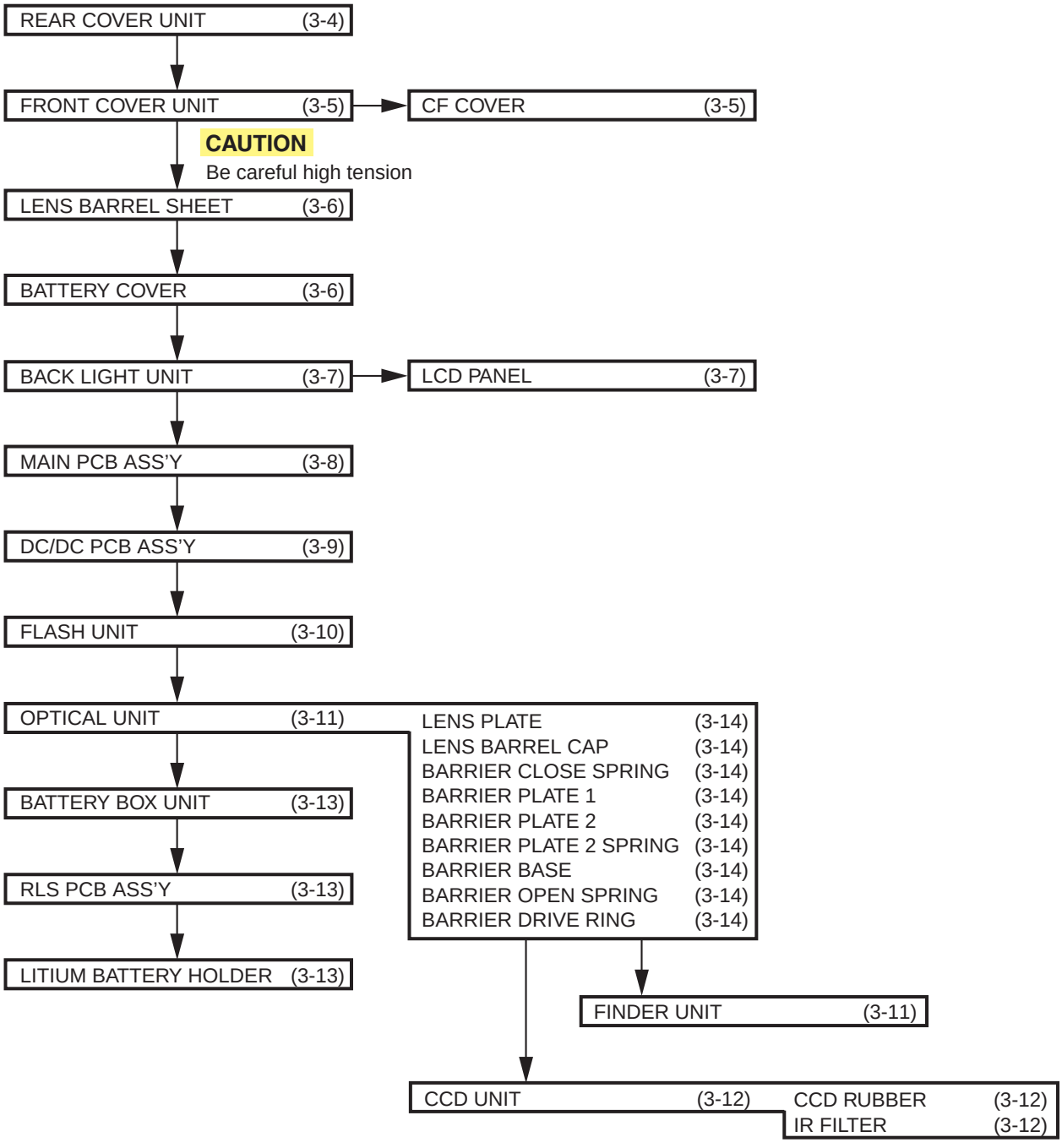


Fig. 3-3 Holes for removal

2. Disassembly/Assembly

2.1 Procedure

Disassembling procedure of PowerShot A20 (A10) is shown by the following flowchart.
Reverse the disassembling procedure to reassemble them. ∗ The pages to refer are shown in parenthesis ( ).



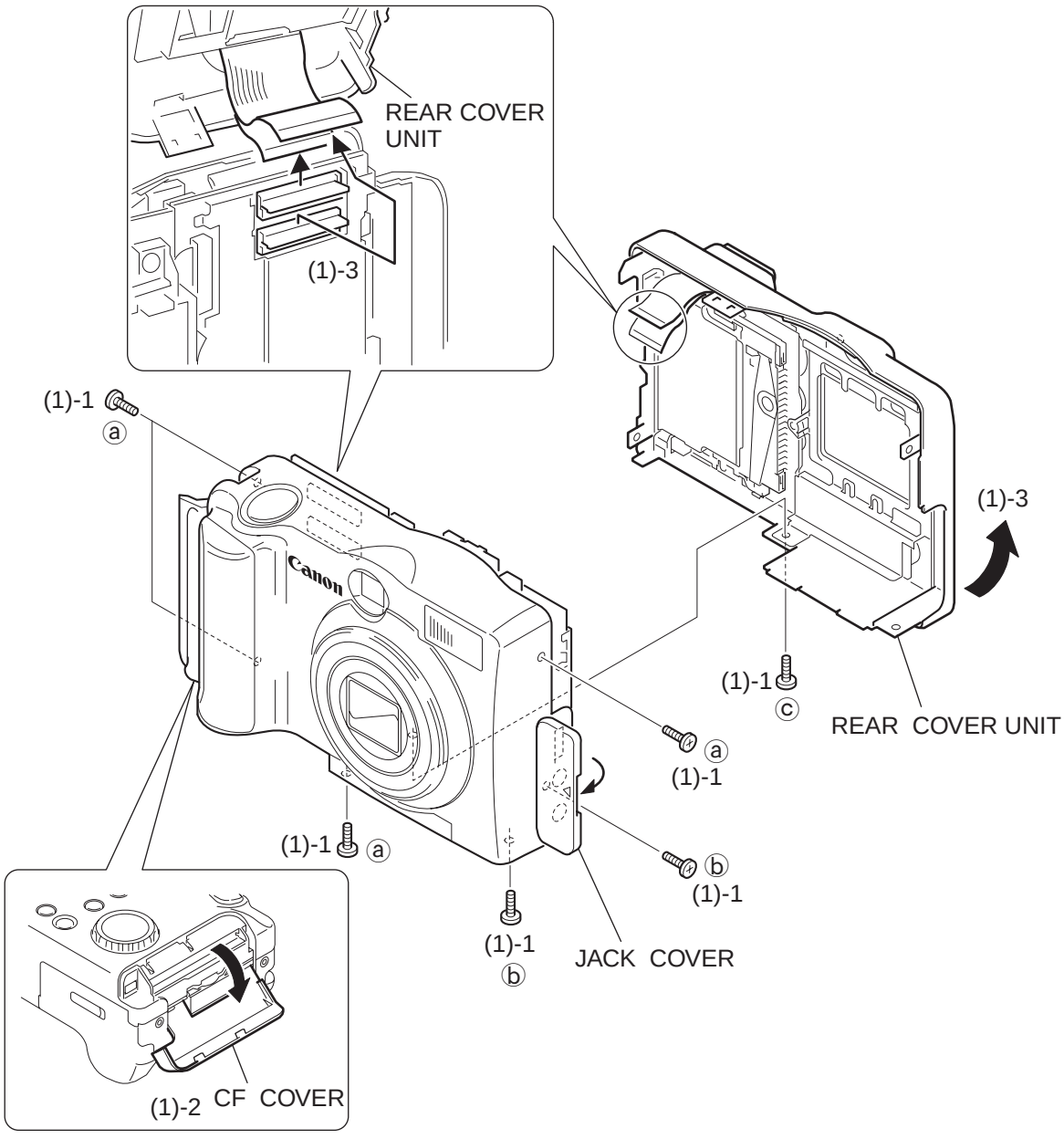


Fig. 3-4 REAR COVER UNIT

2.2 REAR COVER UNIT

(1) REAR COVER UNIT

1. Remove the six screws.
   Remove the one screw by turning over the JACK COVER.
2. Open the CF COVER.
3. Open the REAR COVER UNIT in the direction of arrow and remove it by disconnecting the two flexible printed wired board.

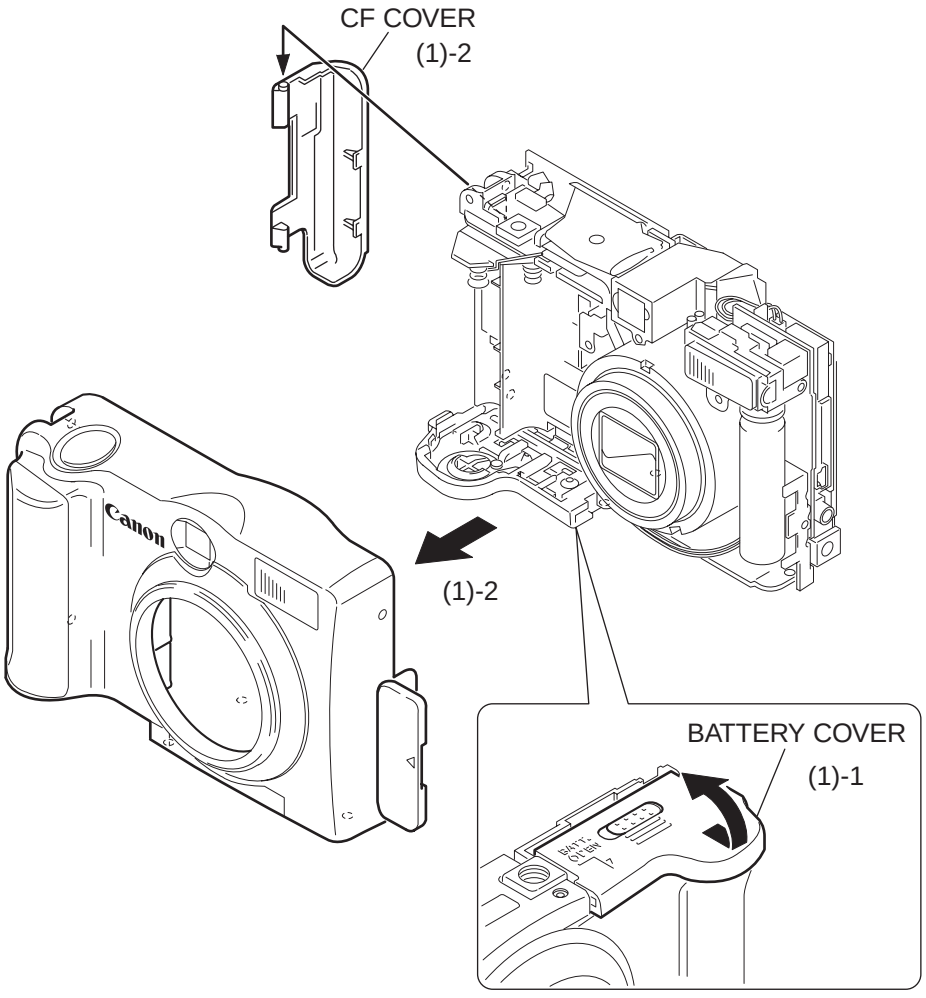


Fig. 3-5 FRONT COVER UNIT, CF COVER

2.3 FRONT COVER UNIT, CF COVER

(1) FRONT COVER UNIT, CF COVER

1. Open the BATTERY COVER.
2. Take the FRONT COVER UNIT in the direction of arrow and at the same time remove the CF COVER.

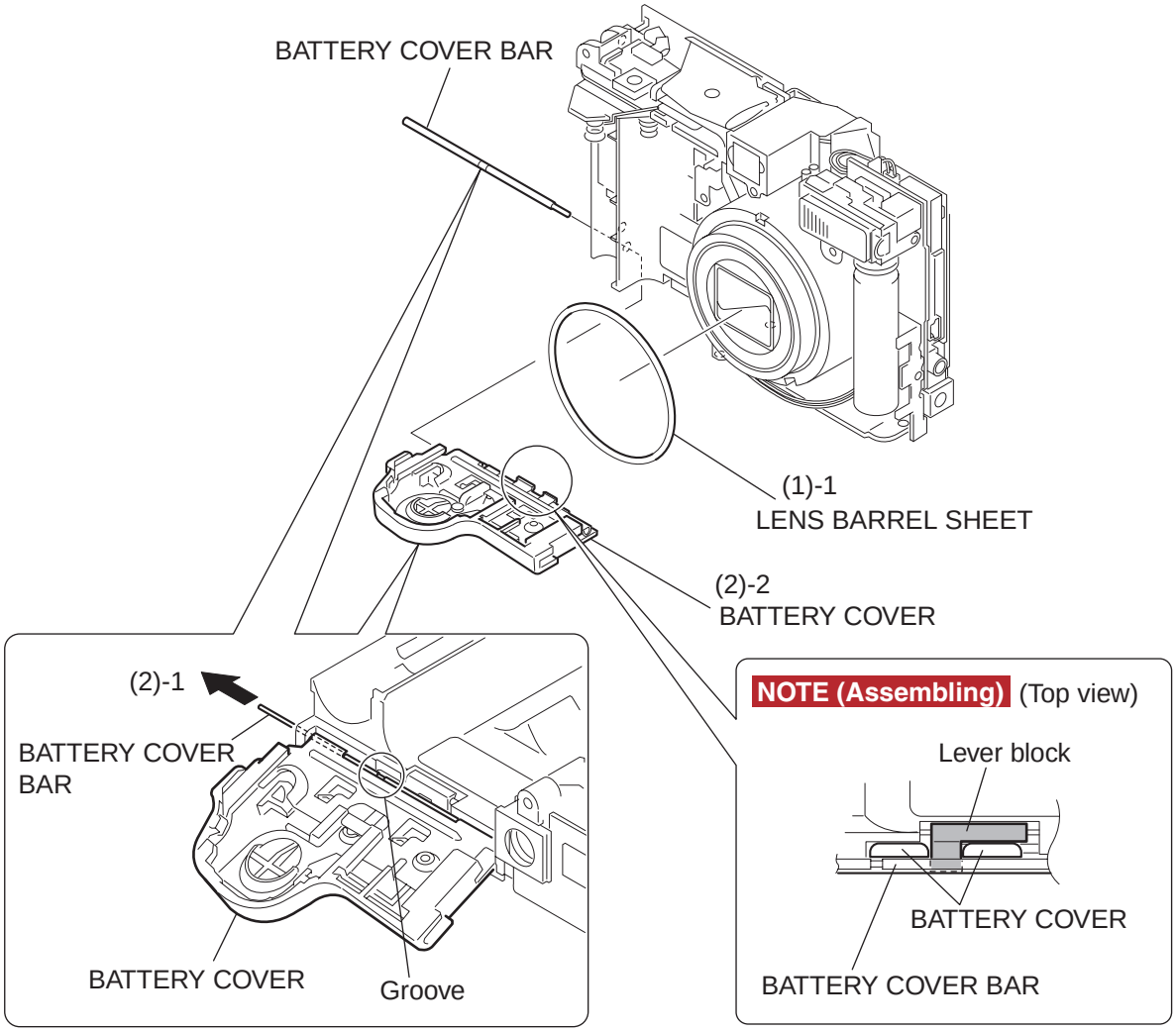


Fig. 3-6 LENS BARREL SHEET, BATTERY COVER

2.4 LENS BARREL SHEET, BATTERY COVER

(1) LENS BARREL SHEET

1. Remove the LENS BARREL SHEET.

(2) BATTERY COVER

1. Insert tweezers or the like into the groove of the BATTERY COVER BAR and remove it in the direction of arrow.
2. Remove the BATTERY COVER.

NOTE (Assembling)

Attach the lever block to the BATTERY COVER.

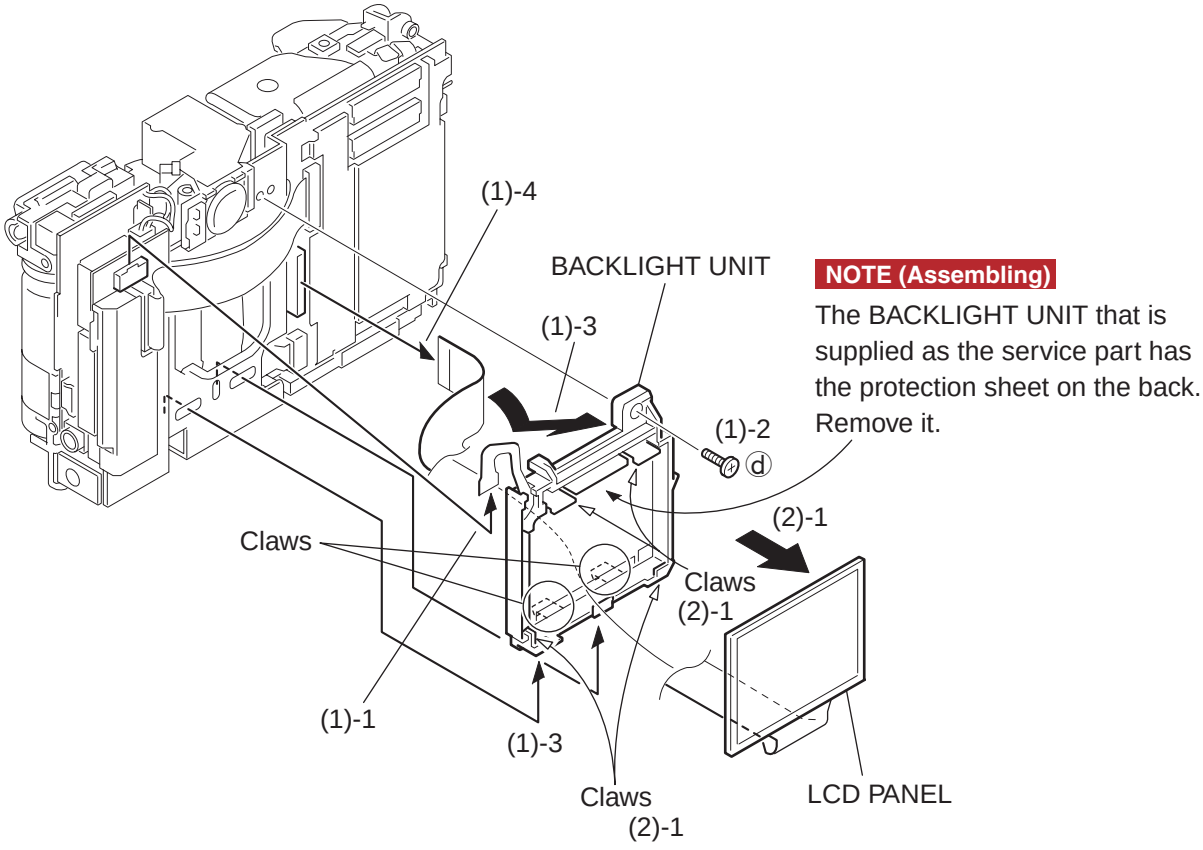


Fig. 3-7 BACKLIGHT UNIT, LCD PANEL

2.5 BACKLIGHT UNIT, LCD PANEL

(1) BACKLIGHT UNIT

1. Remove the flexible printed wired board of the BACKLIGHT UNIT.
2. Remove the screw.
3. Rotate the BACKLIGHT UNIT in the direction of arrow and remove it by releasing the claws.
4. Remove the flexible printed wired board of the LCD PANEL.

(2) LCD PANEL

1. Release the four claws in the top and bottom, and remove the LCD PANEL in the direction of arrow.

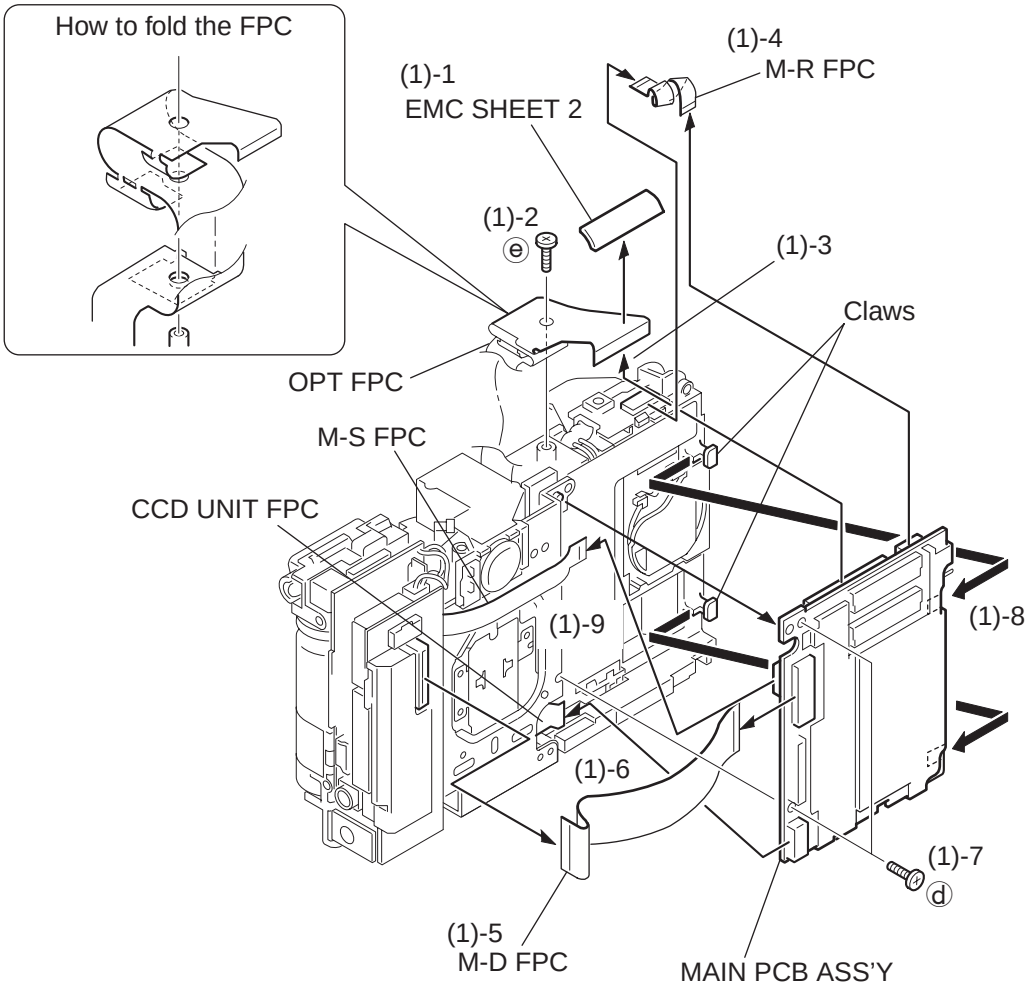


Fig. 3-8 MAIN PCB ASS'Y

2.6 MAIN PCB ASS'Y

(1) MAIN PCB ASS'Y

1. Remove the EMC SHEET 2.
2. Remove the screws.
3. Remove the OPT FPC.
4. Remove the M-R FPC.
5. Remove the M-D FPC.
6. Remove the flexible printed wired board of the CCD UNIT.
7. Remove the two screws.
8. While taking care of the claws in the top and bottom, remove the MAIN PCB ASS'Y in the direction of arrow.
9. Remove the M-S FPC.

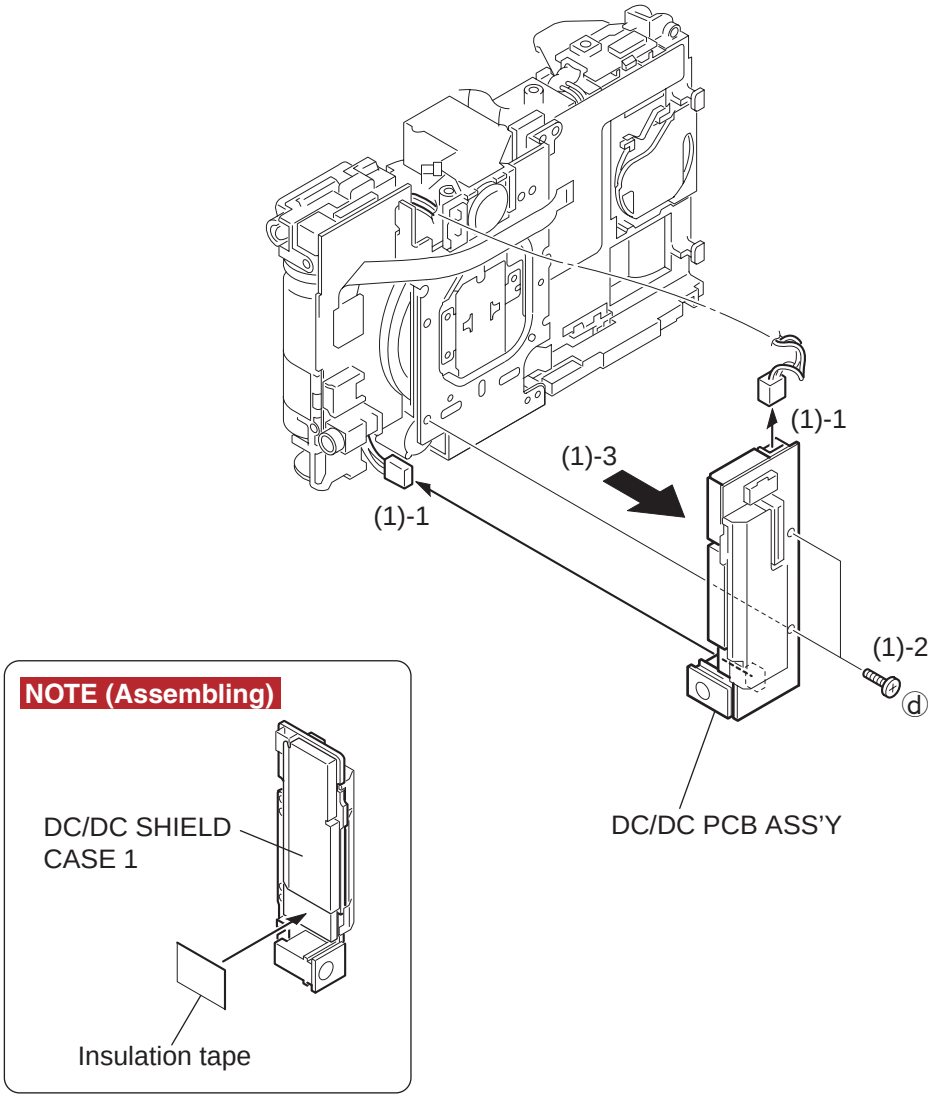


Fig. 3-9 DC/DC PCB ASS'Y

2.7 DC/DC PCB ASS'Y

(1) DC/DC PCB ASS'Y

1. Disconnect the two connectors.
2. Remove the two screws.
3. Remove the DC/DC PCB ASS'Y in the direction of arrow.

NOTE (Assembling)

Attach the insulation tape to the DC/DC SHIELD CASE 1.

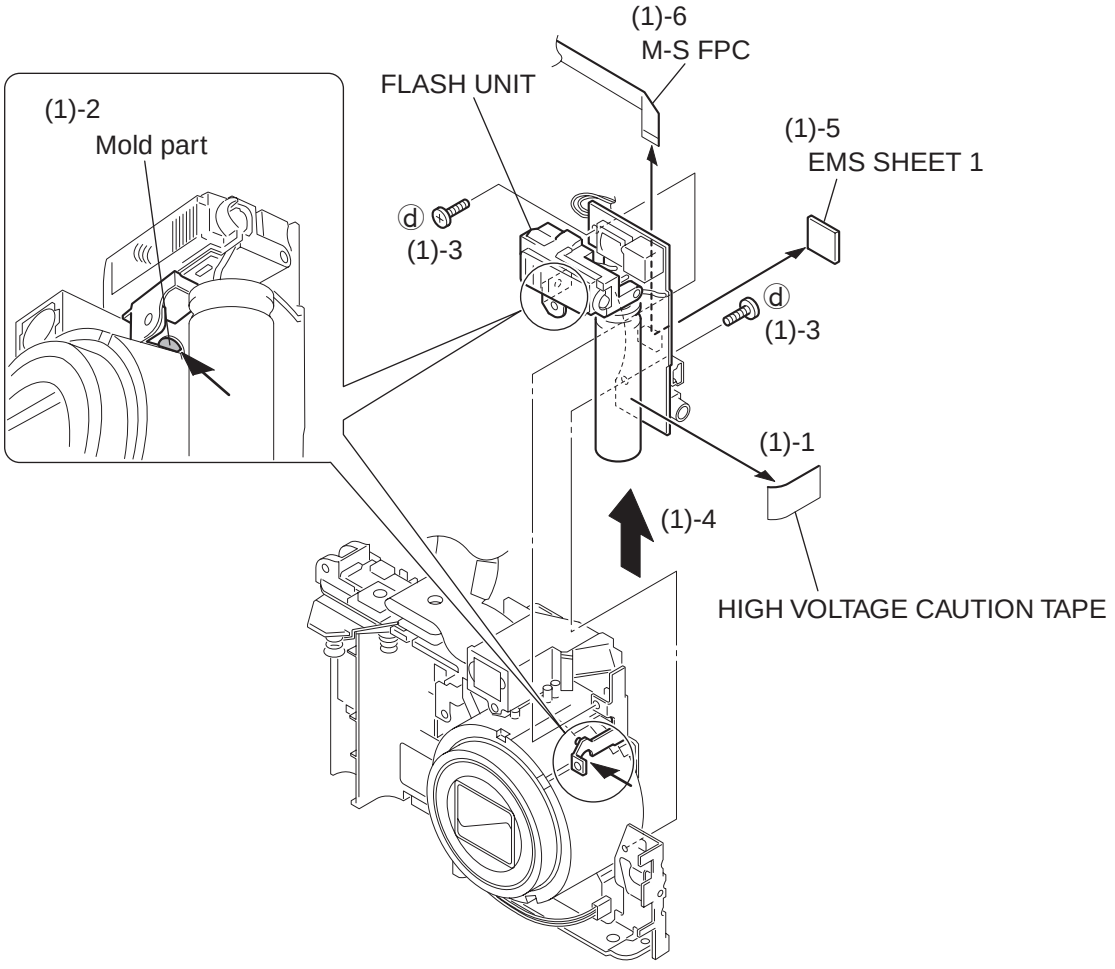


Fig. 3-10 FLASH UNIT

2.8 FLASH UNIT

(1) FLASH UNIT

1. Remove the HIGH VOLTAGE CAUTION TAPE.
2. Remove the mold part of the FLASH UNIT from the dowel with the sharp point tweezers or the like.
3. Remove the two screws. (One screw from the front and the other from the rear.)
4. Remove the FLASH UNIT by sliding it.
5. Remove the EMS SHEET 1.
6. Remove the M-S FPC.

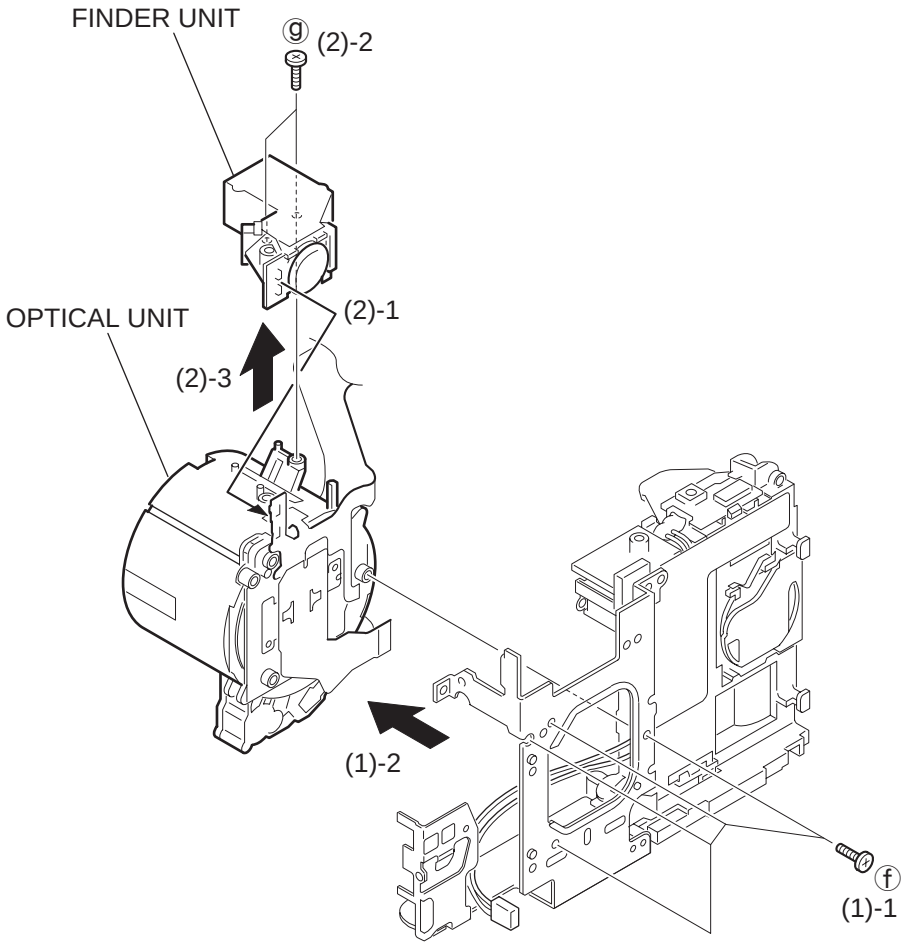


Fig. 3-11 OPTICAL UNIT, FINDER UNIT

2.9 OPTICAL UNIT, FINDER UNIT

(1) OPTICAL UNIT

1. Remove the four screws.
2. While taking care of flexible printed wired board, remove the OPTICAL UNIT in the direction of arrow.

(2) FINDER UNIT

1. Remove the flexible printed wired board.
2. Remove the two screws.
3. Remove the FINDER UNIT in the direction of arrow.

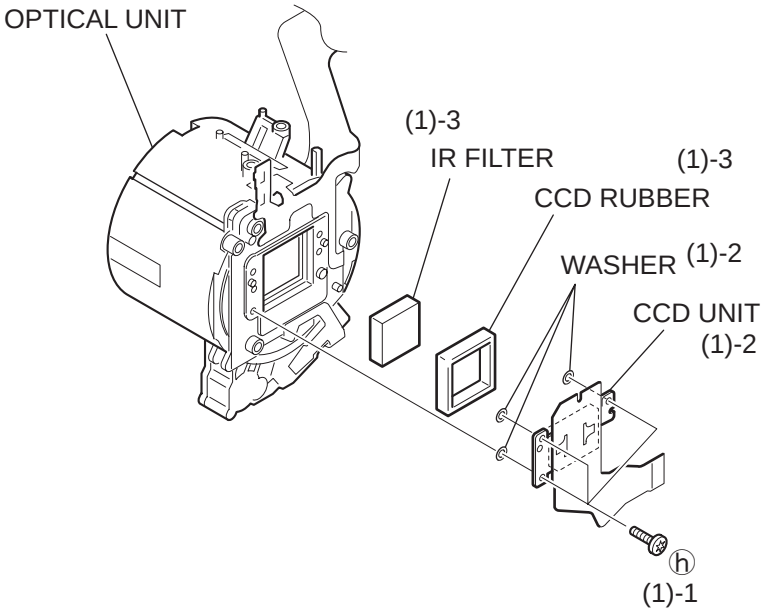


Fig. 3-12 CCD UNIT

2.10 CCD UNIT

(1) CCD UNIT

1. Remove the three screws.
   * Use the HAND DRILL BIT (CY9-1548-000).
2. Remove the CCD UNIT.

CAUTION

Be careful not to drop the washers.

3. Remove the CCD RUBBER, IR FILTER.

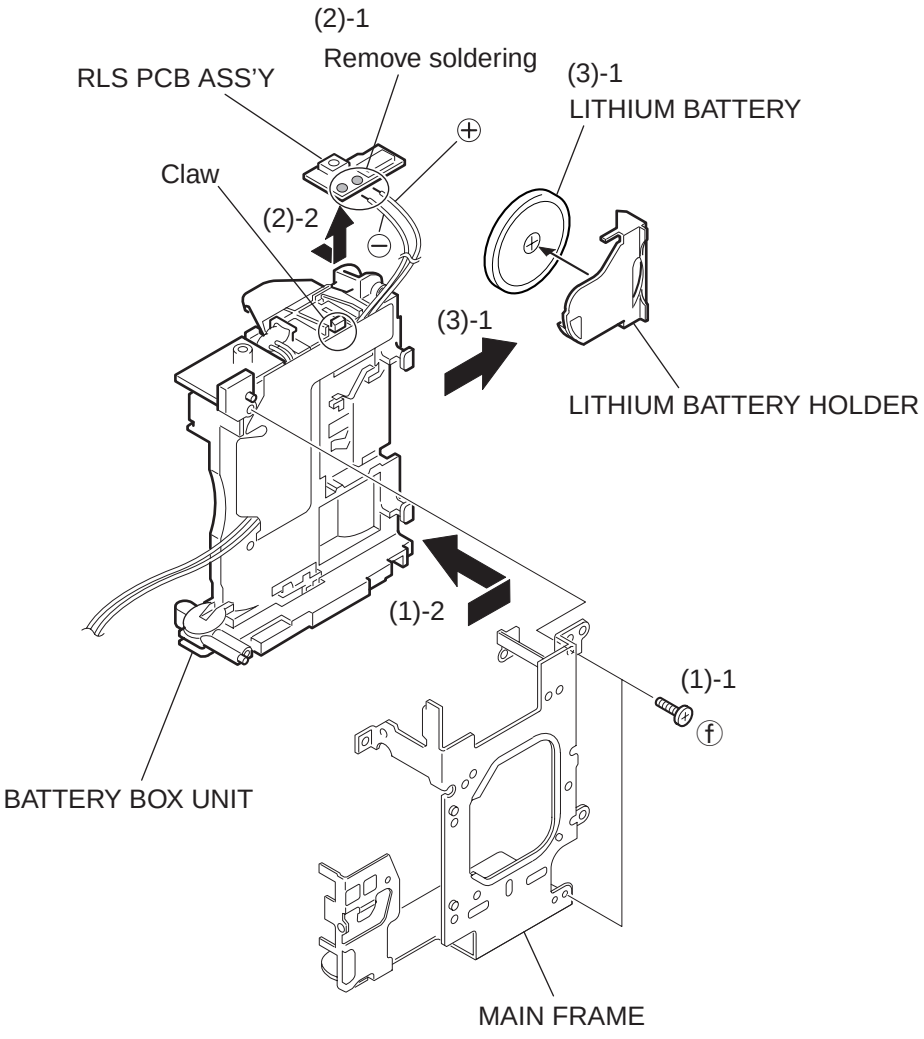


Fig. 3-13 BATTERY BOX UNIT, RLS PCB ASS'Y, LITHIUM BATTERY HOLDER

2.11 BATTERY BOX UNIT, RLS PCB ASS'Y, LITHIUM BATTERY HOLDER

(1) BATTERY BOX UNIT

1. Remove the two screws.
2. Remove the BATTERY BOX UNIT in the direction of arrow.

(2) RLS PCB ASS'Y

1. Remove soldering. (⊕ : red, ⊖ : black)
2. Release the claws and remove the RLS PCB ASS'Y in the direction of arrow.

(3) LITHIUM BATTERY HOLDER

1. Remove the LITHIUM BATTERY from the LITHIUM BATTERY HOLDER.

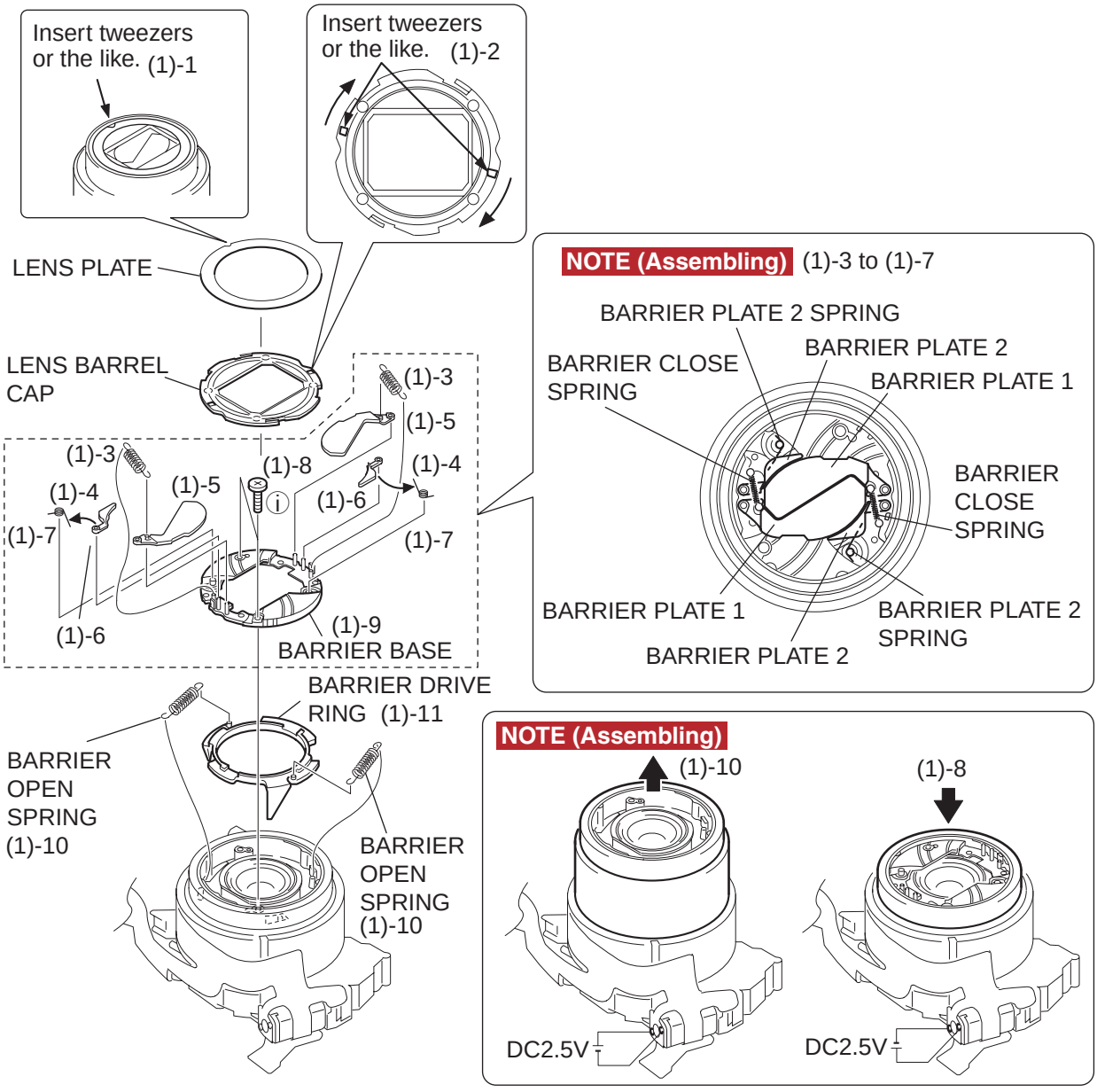


Fig. 3-14 OPTICAL UNIT

2.12 OPTICAL UNIT

(1) OPTICAL UNIT

1. Remove the LENS PLATE by inserting tweezers or the like into its groove.
2. Insert tweezers or the like to the LENS CARREL CAP. Rotate it in the clockwise direction and remove it.
3. Remove the BARRIER CLOSE SPRING (2 pieces).
4. Remove an end of the BARRIER PLATE 2 SPIRNG (2 pieces) and loosen the fastening of the BARRIER PLATE 2.
5. Remove the BARRIER PLATE 1 (2 pieces).
6. Remove the BARRIER PLATE 2 (2 pieces).
7. Remove the BARRIER PLATE 2 SPIRNG (2 pieces).
8. Remove the two screws.

NOTE (Assembling) Apply the voltage (DC 2.5V) across the motor terminal to drive the motor until the motor stops and the BARREL is fully comes out.

9. Remove the BATTIER BASE.
10. Remove the BARRIER OPEN SPRING (2 pieces).

NOTE (Assembling) Apply the voltage (DC 2.5V) across the motor terminal to drive the motor until the motor stops and the BARREL is full housed.

11. Remove the BARRIER DRIVE RING.

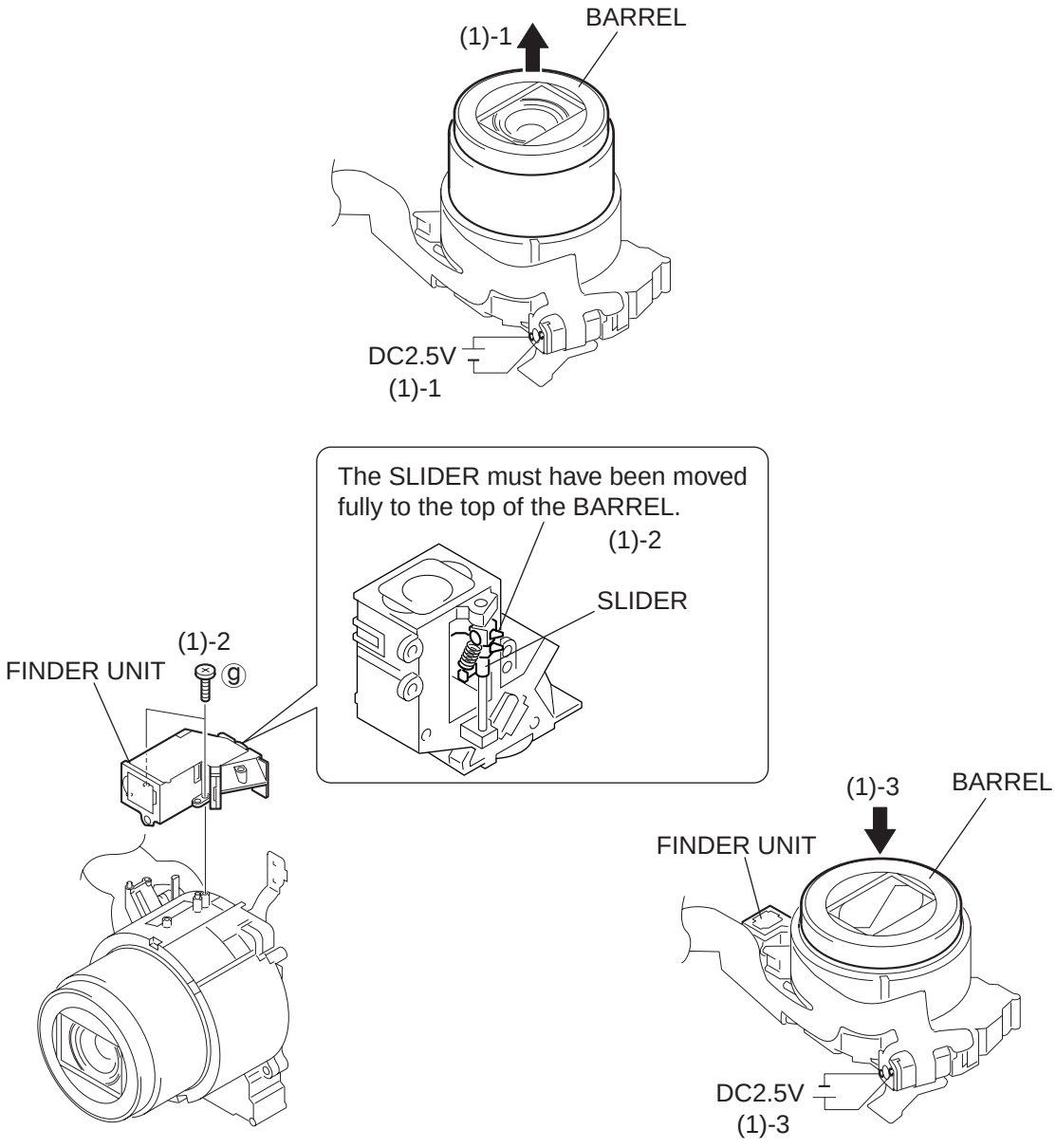


Fig. 3-15 Assembling the FINDER UNIT

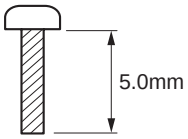
2.13 Assembling the FINDER UNIT

(1) Assembling the FINDER UNIT

1. Apply the voltage (DC 2.5V) across the motor terminal to drive the motor until the motor stops and the BARREL fully comes out.
2. Move the SLIDER fully to the top of the BARREL and secure it with the two screws.
3. Apply the voltage (DC 2.5V) across the motor terminal to drive the motor until the motor stops and the BARREL is full housed.

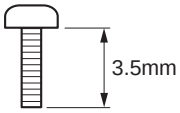
2.14 Screw List

ⓐ
CD1-3791-000



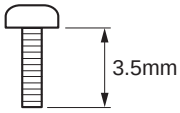
SILVER
M1.7
(SELF TAP)

ⓑ
CD1-3793-000



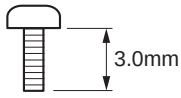
SILVER
M1.7

ⓒ
CD1-3795-000



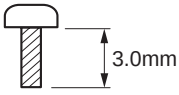
GRAY BROWN
M1.7

ⓓ
CD1-3798-000



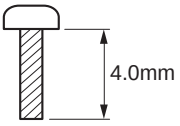
METAL
M1.7

ⓔ
CD1-3441-000



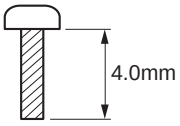
BLACK
M1.7
(SELF TAP)

ⓕ
XA4-9170-409



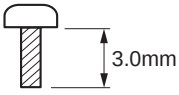
BLACK
M1.7
(SELF TAP)

ⓖ
XA4-9170-407



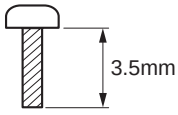
METAL
M1.4
(SELF TAP)

ⓗ
FC3-0021-000



METAL
M1.4
(SELF TAP)

ⓘ
XA4-9140-359



BLACK
M1.4
(SELF TAP)

3. Adjustments

3.1 Replacement Parts and Adjustment Items

PowerShot A20 (A10) requires electrical adjustments when certain parts are replaced.
The table below indicates the adjustments required for the respective part replacements.
For all other parts not listed below, no electrical adjustments are necessary after replacement.

Adjustment Items / Replacement Part	CCD Adjustment	Optical Unit Adjustment	Imaging Process Adjustment	Pixel Dot Adjustment	Flash Adjustment	Chinese Characters *1
BATTERY BOX UNIT						
DC/DC CONV. UNIT						
OPTICAL UNIT	● #1	● #2	● #3	● #4	● #5	
FLASH UNIT					●	
MAIN PCB ASS'Y	○ #1	○ #2	○ #3	○ #4	○ #5	●
LCD PANEL						
BACK LIGHT UNIT						

● : Adjustment is necessary after replacement.
○ : Adjustment is necessary after replacement.
(Adjustment is not necessary, only if the adjustment data has been saved and then transferred after the part is replaced.)
Blank : Adjustment is unnecessary.

*1 This adjustment is only for the "OTH" Model.

* When OPTICAL UNIT is replaced, adjust certainly at the procedure as below.

#1. CCD Adjustment
↓
#2. Optical Unit Adjustment
↓
#3. Imaging Process Adjustment
↓
#4. Pixel Dot Adjustment
↓
#5. Flash Adjustment

3.2 Adjustment Tools

The following tools are required for electrical adjustment.

DESCRIPTION	PARTS NO.	REMARKS
PC/AT-Compatible Machine (Windows98 pre-installed Model, USB port)	—	Local purchase
Adjustment Software (CD-ROM)	CY8-4371-031	CD-ROM, SERVICE MANUAL (J/E)
Compact Power Adapter CA-PS500	—	Enclosed in camera kit (or Local purchase)
INTERFACE CABLE IFC-300PCU (USB Cable)	—	(or Local purchase)
Brightness Box (light source A)	—	Local purchase
Color Viewer (5600° K)	DY9-2039-100	(or Local purchase)
Standard Color Bar Chart	DY9-2002-000	(or Local purchase)
Standard 18% Gray Chart	CY4-6016-000	CHART, 18%GRAY
Auto Focus Chart	—	*1
W-10 Filter *2	CY9-1543-000	(or Local purchase)
C-12 Filter	DY9-2029-000	(or Local purchase)
Light-Shielding Cloth (500 × 500 or larger)	—	Local purchase
Tripod	—	Local purchase

*1 Print the Auto Focus Chart on the legal size paper from the " Chart_Legal.pdf " (in the folder of this CD-ROM, :\Adjust\Chart).
Print the Auto Focus Chart on the A3 size paper from " Chart_A3.pdf ".
*2 2pcs. required.

3.3 Before Starting Electrical Adjustments

3.3.1 TWAIN Driver Installation

Install the USB Driver for Adjustment in the CD-ROM to PC.
("This Adjustment Software" is impossible when the RS-232C TWAIN driver is used.)

3.3.2 Installing the Jpeg.exe

1 Find the Jpeg folder in "Adjust" from the CD-ROM and copy it in an appropriate newly created folder.
2 Add the "ifjpegv6.spi" into the Jpeg folder that is copied in step2, as follows.
* Obtain "ifjpegv6.spi" by downloading the file from the website "http://www.asahi-net.or.jp/~gv9k-setg/ifjpeg.zip" and extract the zip-compressed file.

3.3.3 Installing the Adjustment Software

1. Double click the icon on the launcher screen or a file in the CD-ROM. (Model name of the camera that you are going to adjust and the name of the adjustment software are different.)

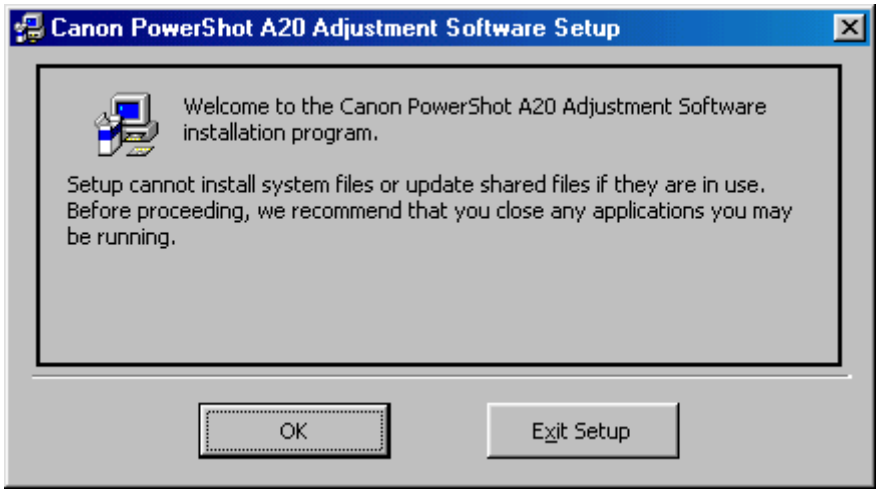
A20

Camera Type		Adjustment Software	
Destination	Third place of Serial No.	Icon	File Pass
USA/Canada	2	A20_USA_Adj.	\Adjust\A20\USA\Setup.exe
Europe	3	A20_EUR_Adj.	\Adjust\A20\Europe\Setup.exe
OTH(Asia/Oceania)	4	A20_OTH_Adj.	\Adjust\A20\OTH\Setup.exe

A10

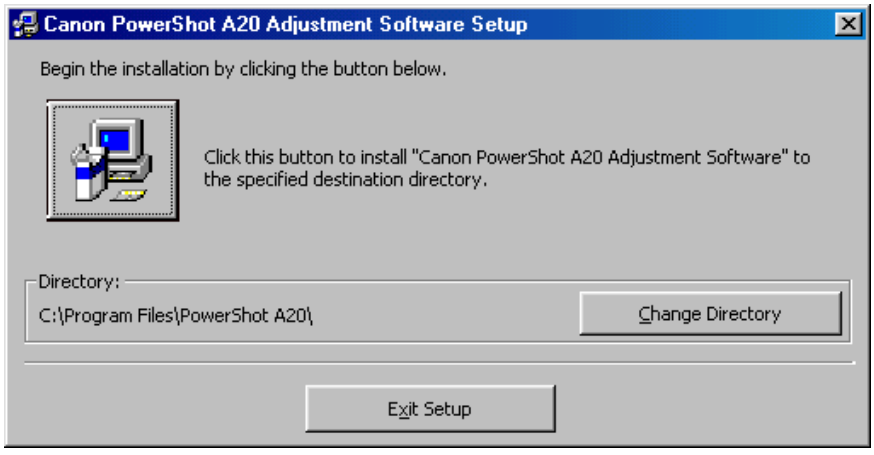
Camera Type		Adjustment Software	
Destination	Third place of Serial No.	Icon	File Pass
USA/Canada	2	A10_USA_Adj.	\Adjust\A10\USA\Setup.exe
Europe	3	A10_EUR_Adj.	\Adjust\A10\Europe\Setup.exe
OTH(Asia/Oceania)	4	A10_OTH_Adj.	\Adjust\A10\OTH\Setup.exe

2. When the dialog box below appears, click the "OK" button.

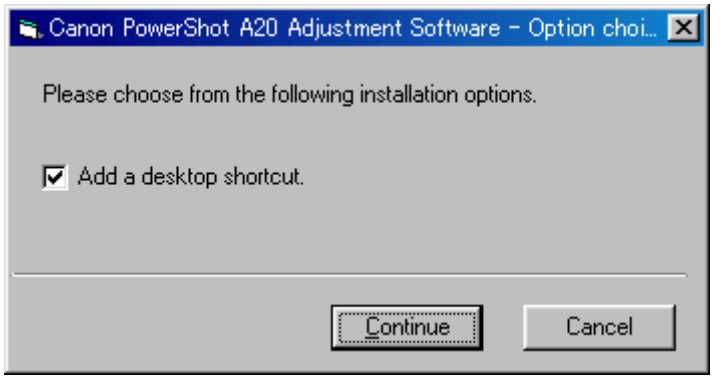

Canon PowerShot A20 Adjustment Software Setup
Welcome to the Canon PowerShot A20 Adjustment Software installation program.
Setup cannot install system files or update shared files if they are in use. Before proceeding, we recommend that you close any applications you may be running.
OK
Exit Setup

* All figures for the Adjustment Software are examples of the PowerShot A20.

3. When the dialog box below appears, click the button. (Software installation will then begin.)


Canon PowerShot A20 Adjustment Software Setup
Begin the installation by clicking the button below.
Click this button to install "Canon PowerShot A20 Adjustment Software" to the specified destination directory.
Directory:
C:\Program Files\PowerShot A20\
Change Directory
Exit Setup

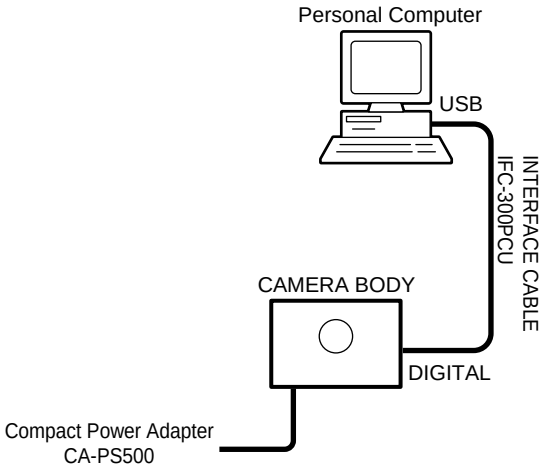
4. When the dialog box below appears, click the “Continue” button.
(In the case that you do not add a shortcut on desktop, remove clicking from the check box.)


Canon PowerShot A20 Adjustment Software - Option choi...
Please choose from the following installation options.
Add a desktop shortcut.
Continue
Cancel

3.3.4 Preparation

Before starting up the Adjustment Software, follow the preparatory steps below:

1. Obtain all the tools necessary for the adjustment.
2. Connect the Camera to the Power Source with the Compact Power Adapter CA-PS500.
3. Set the Replay Mode on the camera and turn on.



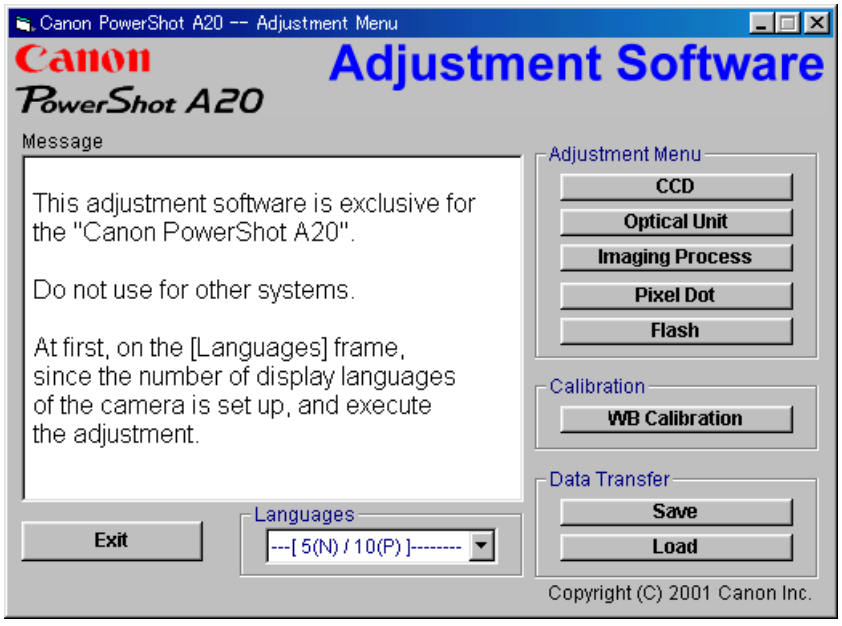
4. Connect the Camera's Digital terminal to the PC's USB Port with INTERFACE CABLE IFC-300 PCU.
5. Turn on the camera.
   Note: Perform the preparation in the following order otherwise the camera won't work properly.

3.3.5 Starting up the Adjustment Software

After completing the preparatory steps, click Start and move the cursor to Program; then select Canon Digital Camera and click PowerShot A20 (or A10) Adjustment.

3.3.6 Menu Window

When the Adjustment Software starts up, the Menu Window below will appear.



3.3.7 How to Use the Adjustment Software

■ Calibration/Adjustment

For starting, click the button related with adjustment.

* Whenever you use your light source for the adjustment for the first time, be sure to click the “WB Calibration” Button.

■ Quitting the Adjustment Software

Click the “Exit” button.

■ Saving or Loading data

- “Save” button: This button saves all adjustment data stored on the camera in text format.
- “Load” button: This button loads all adjustment data saved in text format to the camera.

■ Saving or Loading data

- “Save” button : This button saves all adjustment data stored on the camera in text format.
- “Load” button : This button loads all adjustment data saved in text format to the camera.

■ Notes

- If the adjustment fails, a message indicating the failure will appear on each product. If this happens, do the adjustment again.
- The Adjustment Software is dedicated only to Canon Digital Camera PowerShot A20 (or A10). Never use it for any other camera.
- The Windows98 must be pre-installed on the computer that is equipped with the USB terminal. (Windows95 does not support the USB.)

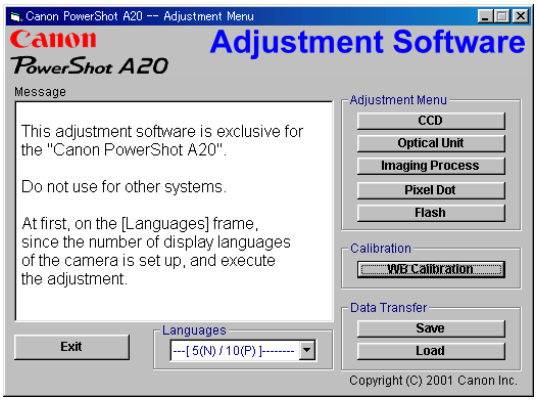
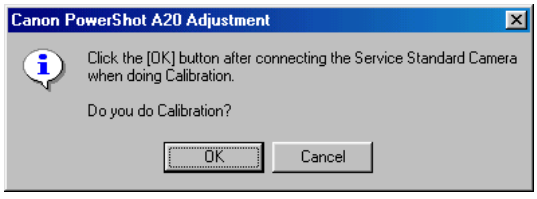
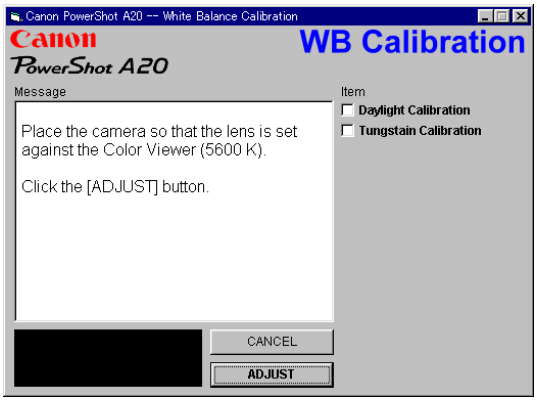
  * The operation with the Win2000, WinMe, etc. is not guaranteed.

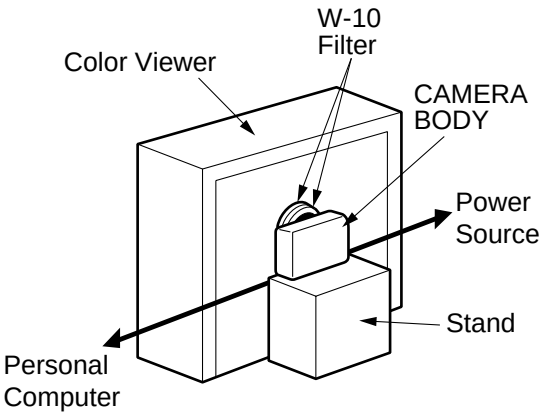
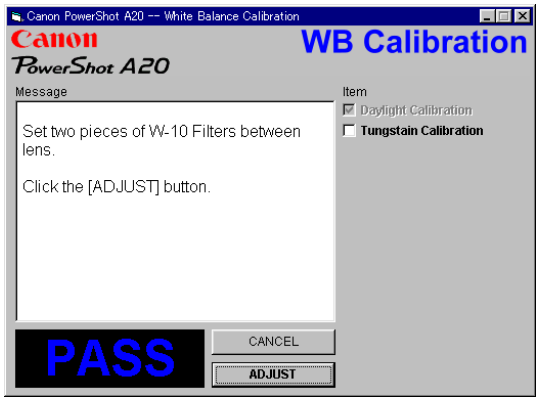
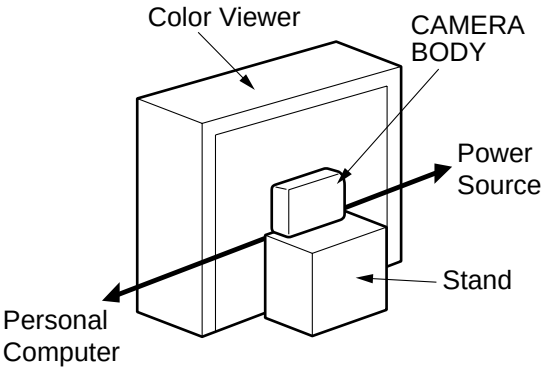
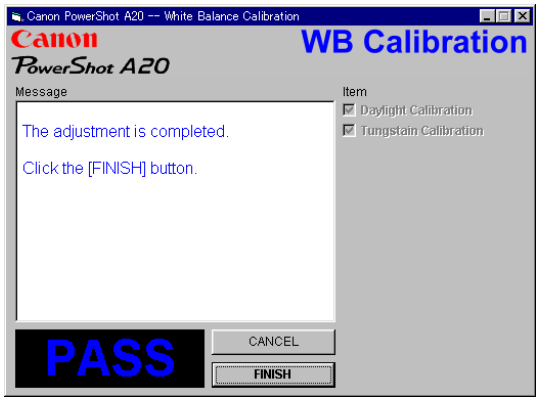
3.4 Calibration

3.4.1 WB Calibration

■ Tools Used

- Reference Camera (Merchandise)
- Compact Power Adapter CA-PS500
- Adjustment Software
- W-10 Filter (2pcs.)
- Personal Computer
- INTERFACE CABLE IFC-300PCU
- Color Viewer (5600° K)

1	Click the “WB Calibration” button.	
2	1. When the message on the right appears, check that the reference camera (Marchandise) is connected to the computer. 2. Click the “OK” button.	
3	When the message on the right appears, go to 4.	

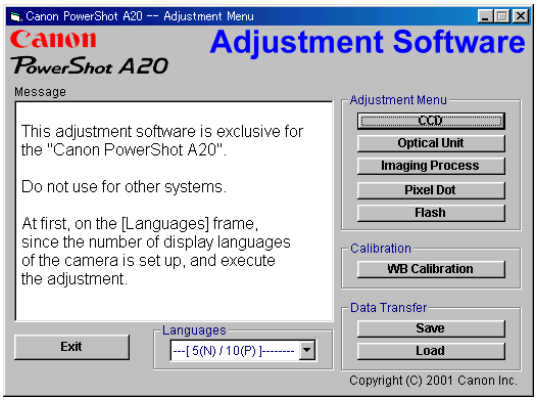
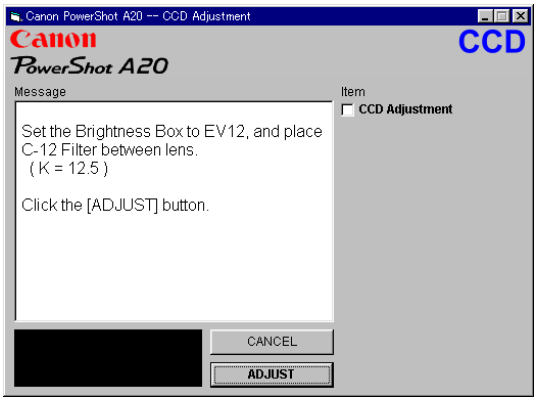
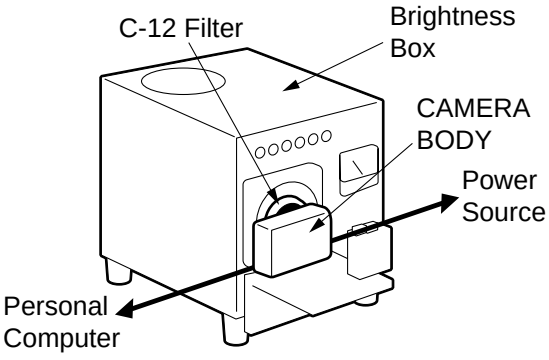
4	1. Place the camera so that the lens is set against the center part of the Color Viewer. 2. Click the “ADJUST” button.	
5	When the message on the right appears go to 6.	
6	1. Attach the two W-10 Filters between the Lens and the Color Viewer. 2. Place the camera so that the lens is set against the center part of the Color Viewer. 3. Click the “ADJUST” button.	
7	When the message on the right appears, click the “FINISH” button. (This ends the “WB Calibration”.)	

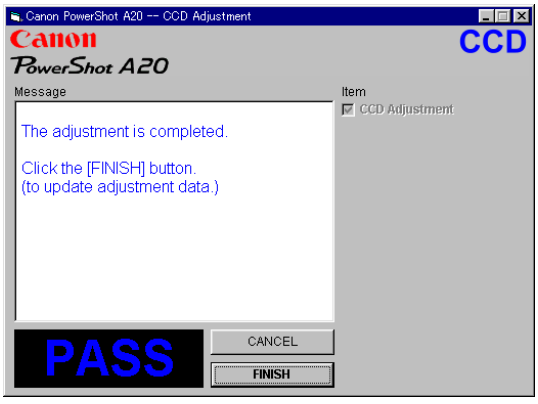
3.5 Adjustment Procedure

3.5.1 CCD Adjustment

■ Tools Used

- Personal Computer
- INTERFACE CABLE IFC-300PCU
- Brightness Box (light source A)
- Compact Power Adapter CA-PS500
- Adjustment Software
- C-12 Filter

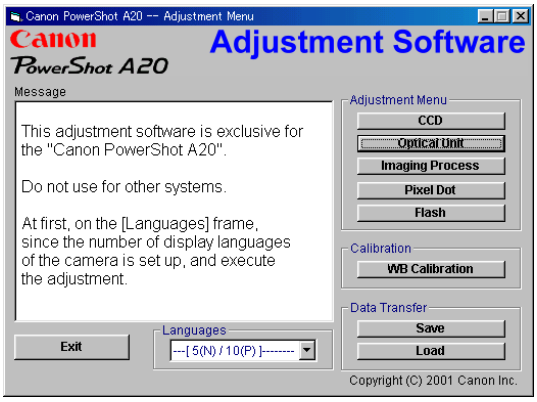
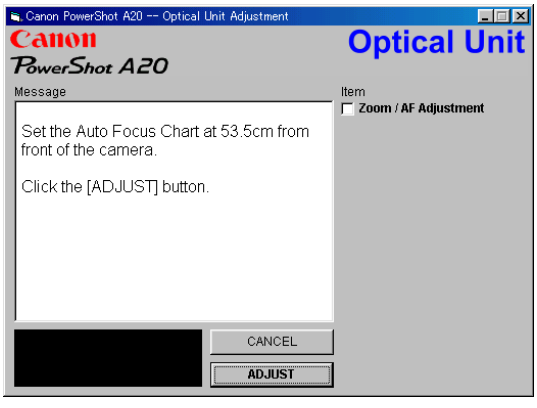
1	Click the “CCD” button.	
2	When the message on the right appears, go to 3.	
3	1. Place the camera so that lens is set against the light source surface of the Brightness Box via the C-12 Filter. 2. Set the Brightness Box to EV12. 3. Click the “ADJUST” button.	

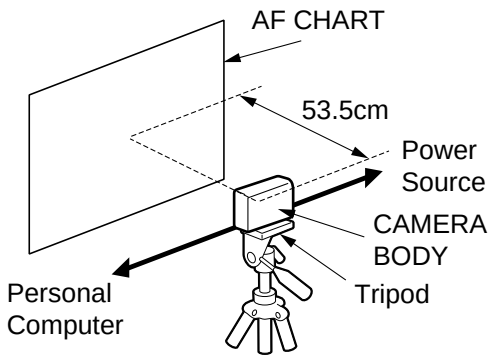
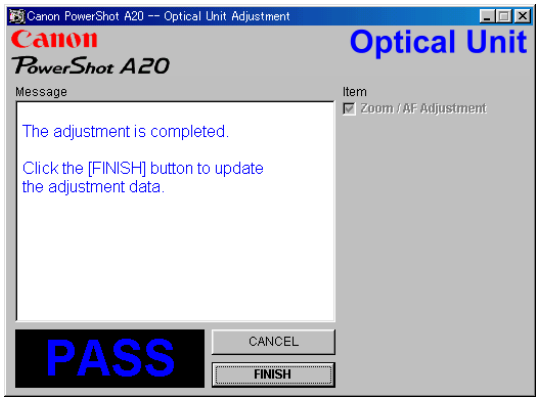
4	When the message on the right appears, click the “FINISH” button. (This ends the “CCD” Adjustment.)	

3.5.2 Optical Unit Adjustment

■ Tools Used

- Personal Computer
- INTERFACE CABLE IFC-300PCU
- AF Chart
- Compact Power Adapter CA-PS500
- Adjustment Software
- Tripod

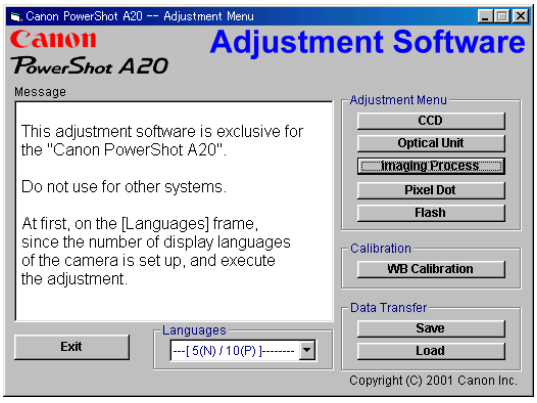
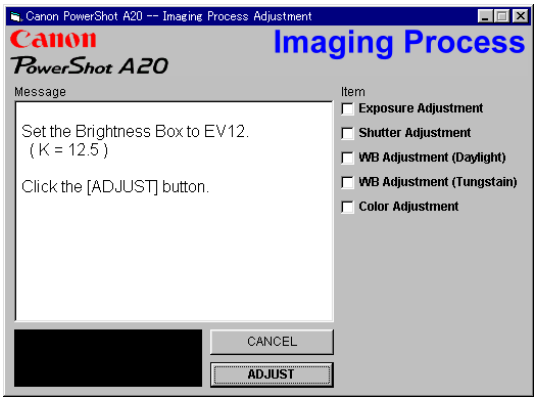
1	Click the “Optical Unit” button.	
2	When the message on the right appears, turn off/on the camera. Click the “OK” button.	
3	When the message on the right appears, go to 4.	

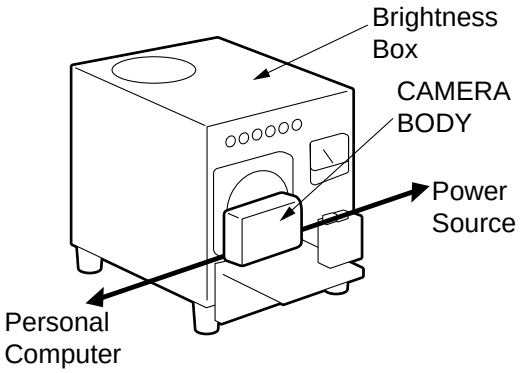
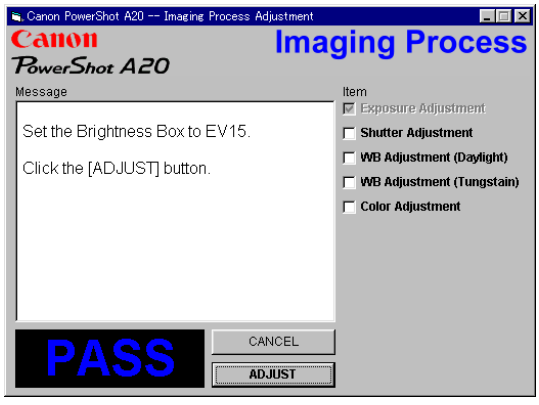
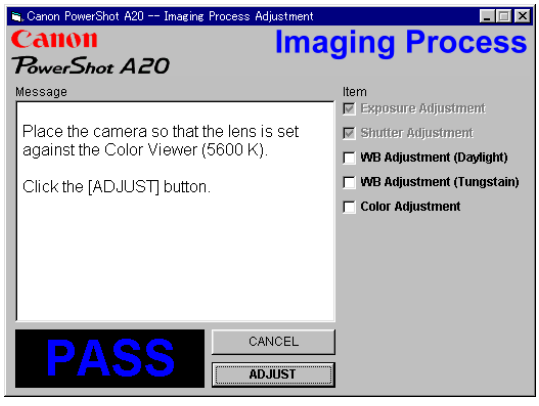
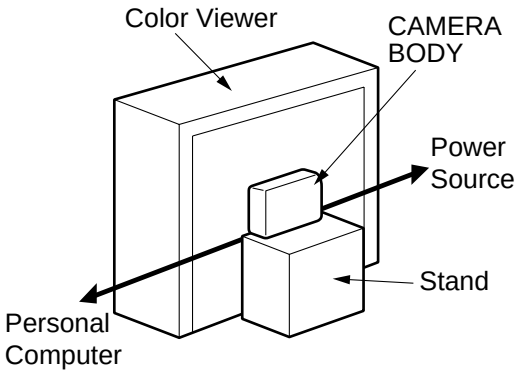
4	1. Place the Auto Focus Chart at 53.5cm away from the front of the camera. * Place the Auto Focus Chart on a plain color wall or equivalent. * Adjust the light so that the brightness of the chart will be about EV8.5. 2. Adjust the position of the camera finely so that the center of the Auto Focus Chart is aligned with the center of the LCD. 3. Click the "ADJUST" button.	
5	When the message on the right appears, click the "FINISH" button. (This ends the "Optical Unit" Adjustment.)	

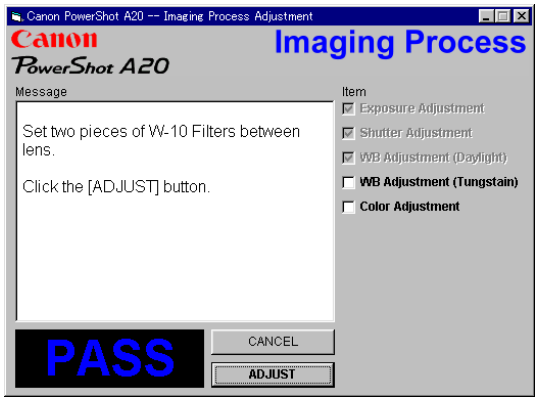
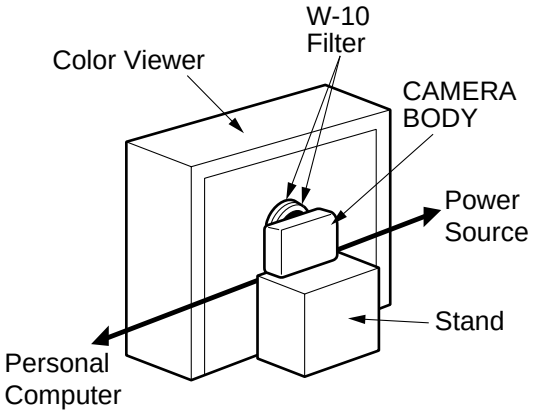
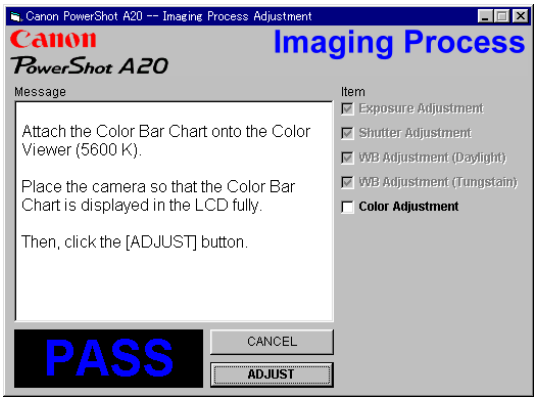
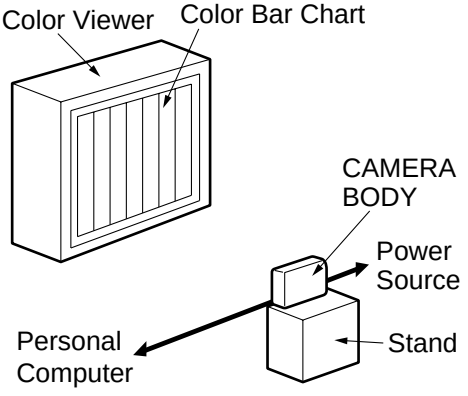
3.5.3 Imaging Process Adjustment

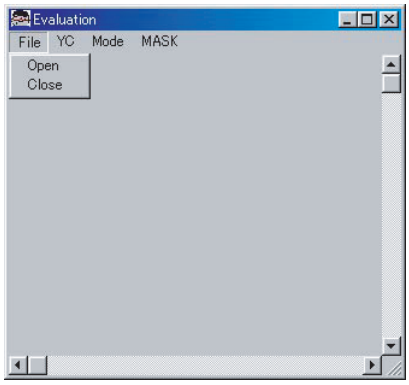
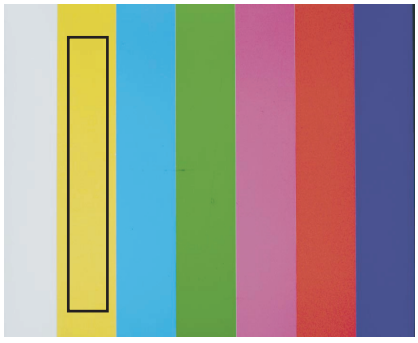
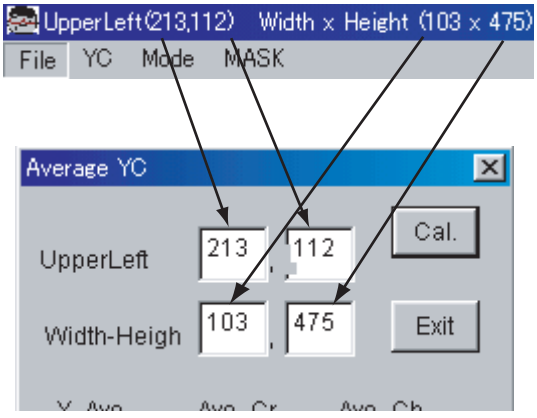
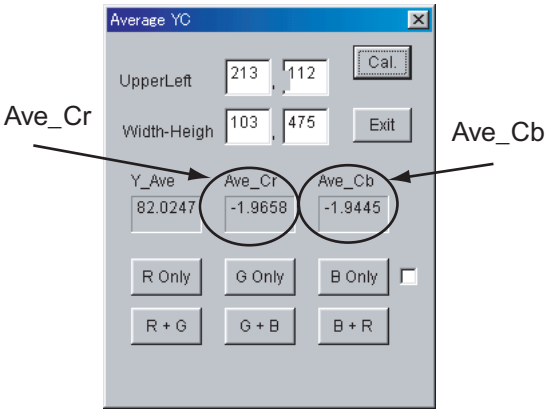
■ Tools Used

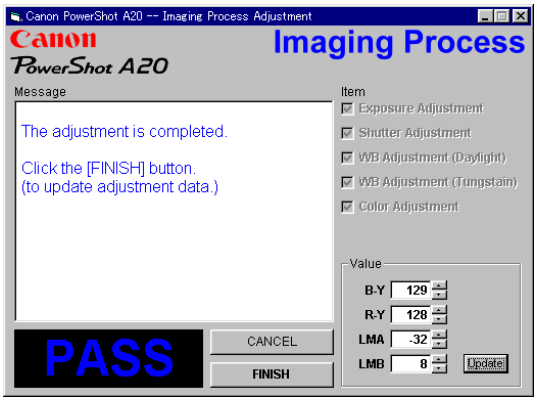
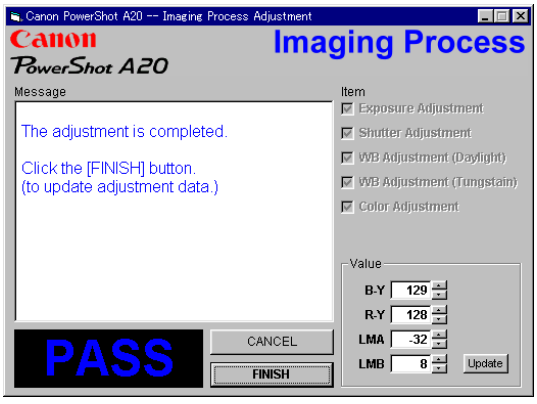
- Personal Computer
- INTERFACE CABLE IFC-300PCU
- Brightness Box (light source A)
- Light-Shielding Cloth
- Compact Power Adapter CA-PS500
- Adjustment Software
- W-10 Filter (2 pcs.)
- Color Viewer (5600° K)
- Color Bar Chart

1	Click the “Imaging Process” button.	
2	When the message on the right appears, turn off/on the camera. Click the “OK” button.	
3	When the message on the right appears, go to 4.	

4	1. Place the camera so that lens is set against the light source surface of the Brightness Box. 2. Set the Brightness Box to EV12. 3. Click the “ADJUST” button.	
5	When the message on the right appears, Set the Brightness Box to EV15. Click the “ADJUST” button.	
6	When the message on the right appears, go to 7.	
7	1. Place the camera so that lens is set against the center of the Color Viewer. 2. Click the “ADJUST” button.	

8	When the message on the right appears, go to 9.	
9	1. Attach the two W-10 filters. 2. Place the camera so that the lens is set against the center part of the Color Viewer. 3. Click the “ADJUST” button.	
10	When the message on the right appears, go to 11.	
11	1. Attach the Color Bar Chart to the Color Viewer. 2. Place the camera so that the viewing image of the color bar chart is the full of LCD. 3. Click the “ADJUST” button.	

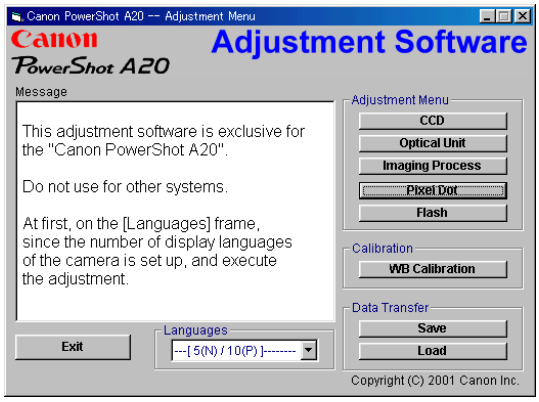
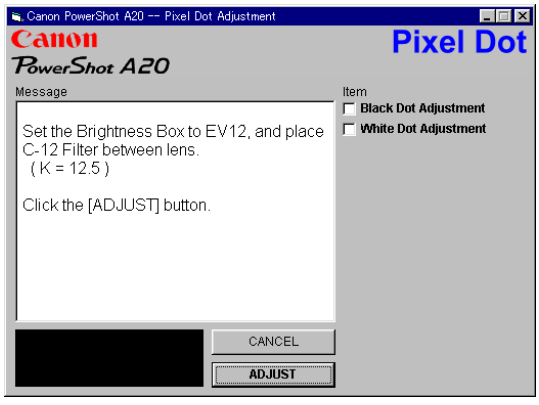
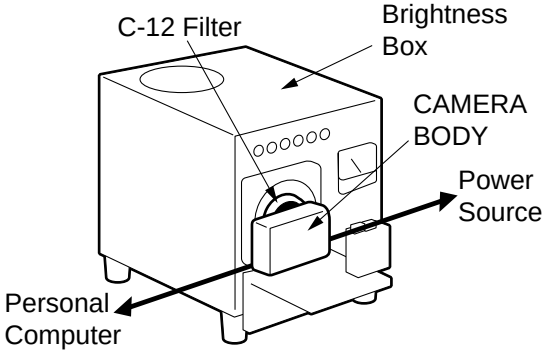
12	1. Excute Jpeg.exe. 2. Select the TestImage.jpg in the folder, where the Adjustment Software is installed, by clicking File. Open from the menu.	
13	1. Point and drag the shot yellow area to be measured with mouse. 2. Select the “YC” on the menu.	
14	When the message on the right appears, job down the numeric value on the Title Bar.	
15	1. Click the “Cal.” button. 2. Jot down the “Ave_Cr” & “Ave_Cb” values. * Measure “Red” referring to the procedures from 13 to 15. 3. If these data are within spesifications, go to 17. * Specification Ave_Cr = Reference Camera ± 10 Ave_Cb = Reference Camera ± 10 Shooting conditions JPEG, LARGE, FINE, FLASH OFF, WB AUTO, AE AUTO, ZOOM WIDE, MACRO	

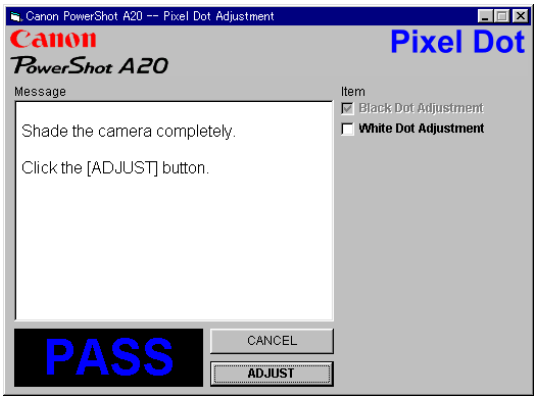
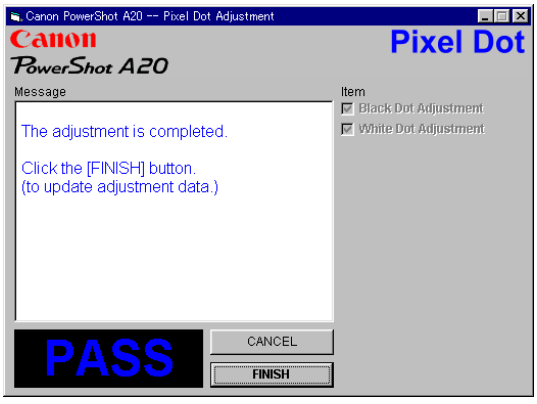
16	1. Confirm to see that the image on the PC monitor satisfies the specifications. 2. If the image on the PC monitor does not satisfy the specifications, change the data using UP, DOWN button or change the data directly by typing the data in the text box. Then click the "UPDATE" button.	
17	When the adjustment is completed, click the "FINISH" button. (This ends the "Imaging Process" Adjustment.)	

3.5.4 Pixel Dot Adjustment

■ Tools Used

- Personal Computer
- INTERFACE CABLE IFC-300PCU
- Brightness Box (light source A)
- Color Viewer (5600° K)
- Compact Power Adapter CA-PS500
- Adjustment Software
- C-12 Filter
- Light-Shielding Cloth (500 × 500 or larger)

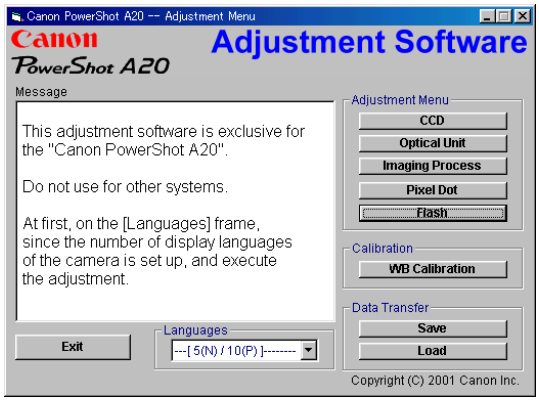
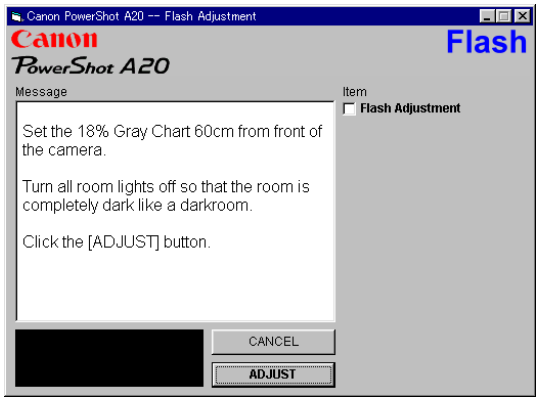
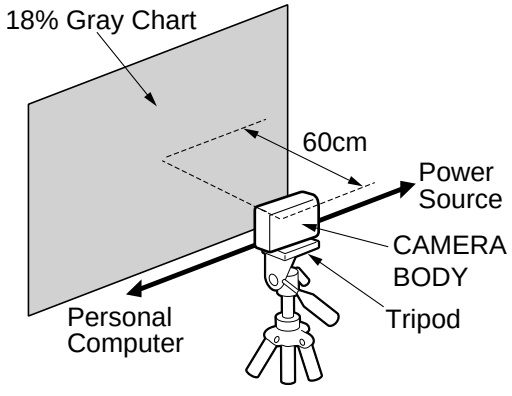
1	Click the “Pixel Dot” button.	
2	When the message on the right appears, Go to 3.	
3	1. Place the camera so that lens is set against the light source surface of the Brightness Box via the C-12 Filter. 2. Set the Brightness Box to EV12. 3. Click the “ADJUST” button.	

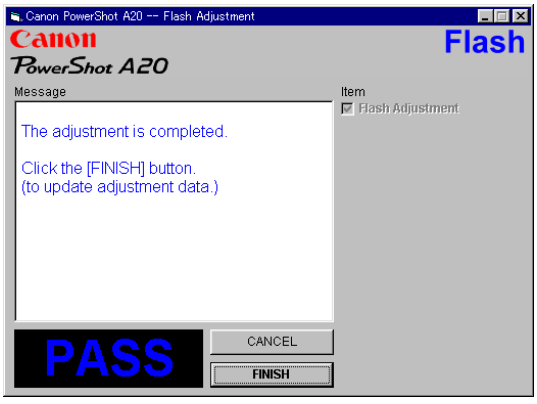
4	1. When the message on the right appears, cover the camera with the Light-Shielding Cloth so that the no light reasons the CCD. 2. Click the “ADJUST” button.	
5	When the message on the right appears, click the “FINISH” button. (This ends the “Pixel Dot” Adjustment.)	

3.5.5 Flash Adjustment

■ Tools Used

- Personal Computer
- INTERFACE CABLE IFC-300PCU
- 18% Gray Chart
- Compact Power Adapter CA-PS500
- Adjustment Software
- Tripod

1	Click the “Flash” button.	
2	When the message on the right appears, go to 3.	
3	1. Set 18% Gray Chart 60cm from the Finder on camera front. 2. Make the room as dark as a darkroom. 3. Click the “ADJUST” button.	

4	When the message on the right appears, click the "FINISH" button. (This ends the "Flash" adjustment.)	

3.5.6 Language setting

Unlike the conventional PowerShot Series (incl. IXY DIGITAL), the PowerShot G1 can select the video output system (NTSC/PAL).
(The video output system is not settable with the Adjustment Software.)

On the other hand, the user cannot select the indication language of the LCD, as it is already prepared for each destination as below. (2 kinds)

- 5 languages (N) : English, German, French, Spanish, Japanese
- 10 languages (P) : English, German, French, Dutch, Danish, Finnish, Italian, Norwegian, Swedish, Spanish

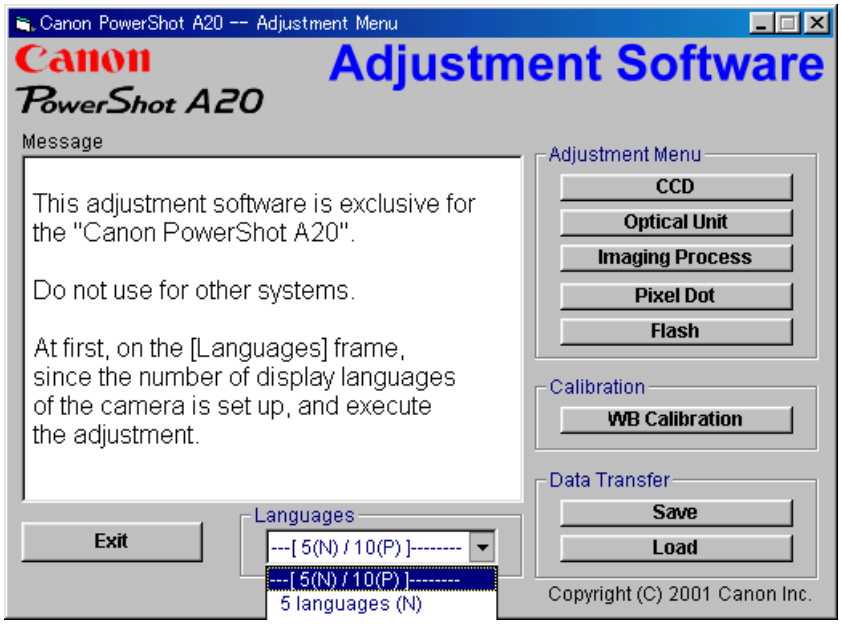
Therefore, be sure to set the indication language of the LCD on the adjustment software.

■ Tools Used

- Personal Computer
- INTERFACE CABLE IFC-300PCU
- Compact Power Adapter CA-PS500
- Adjustment Software

< Procedures >

1. Open the “Languages” Pull-Down Menu of the Adjustment Software.
2. Select any of the 5 languages (N) / 10 languages (P) according to the destination (or the initial setting of camera).



Notes:

1. If the above setting is not performed, the language before the electrical adjustment is effective.
2. The MAIN PCB ASS’Y of Service part is set to the “5 languages (N)”.

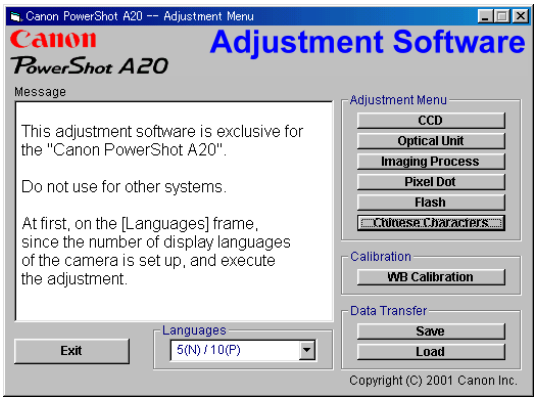
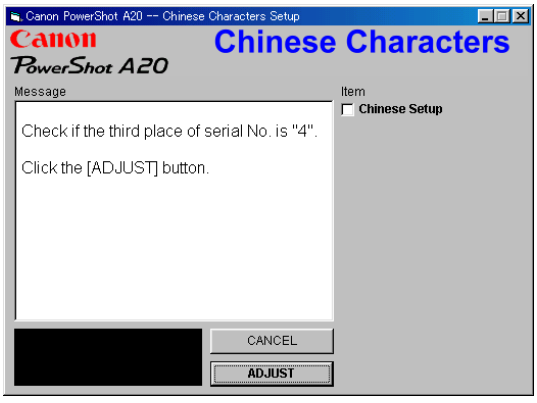
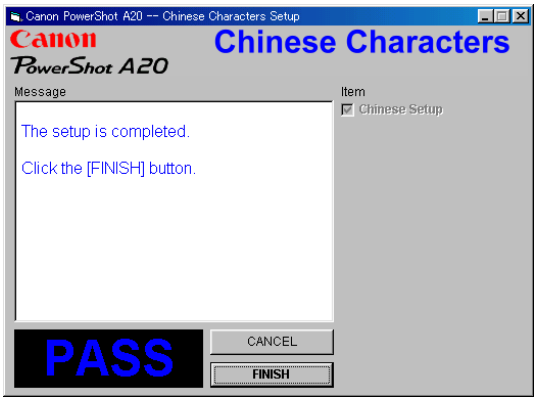
* Before the electrical adjustment, it is recommended to take notes of settings of the indication language and video output system.

3.5.7 Chinese Characters

Note: This adjustment is only for the “OTH” Model.

■ Tools Used

- Personal Computer
- INTERFACE CABLE IFC-300PCU
- Compact Power Adapter CA-PS500
- Adjustment Software

1	Click the “Chinese Characters” button.	
2	1. When the message on the right appears, check if the third place of serial number on the camera is “4”. 2. Click the “ADJUST” button.	
3	When the message on the right appears, click the “FINISH” button. (This ends the “Chinese Character” Setup.)	

CHAPTER 4. PARTS CATALOG

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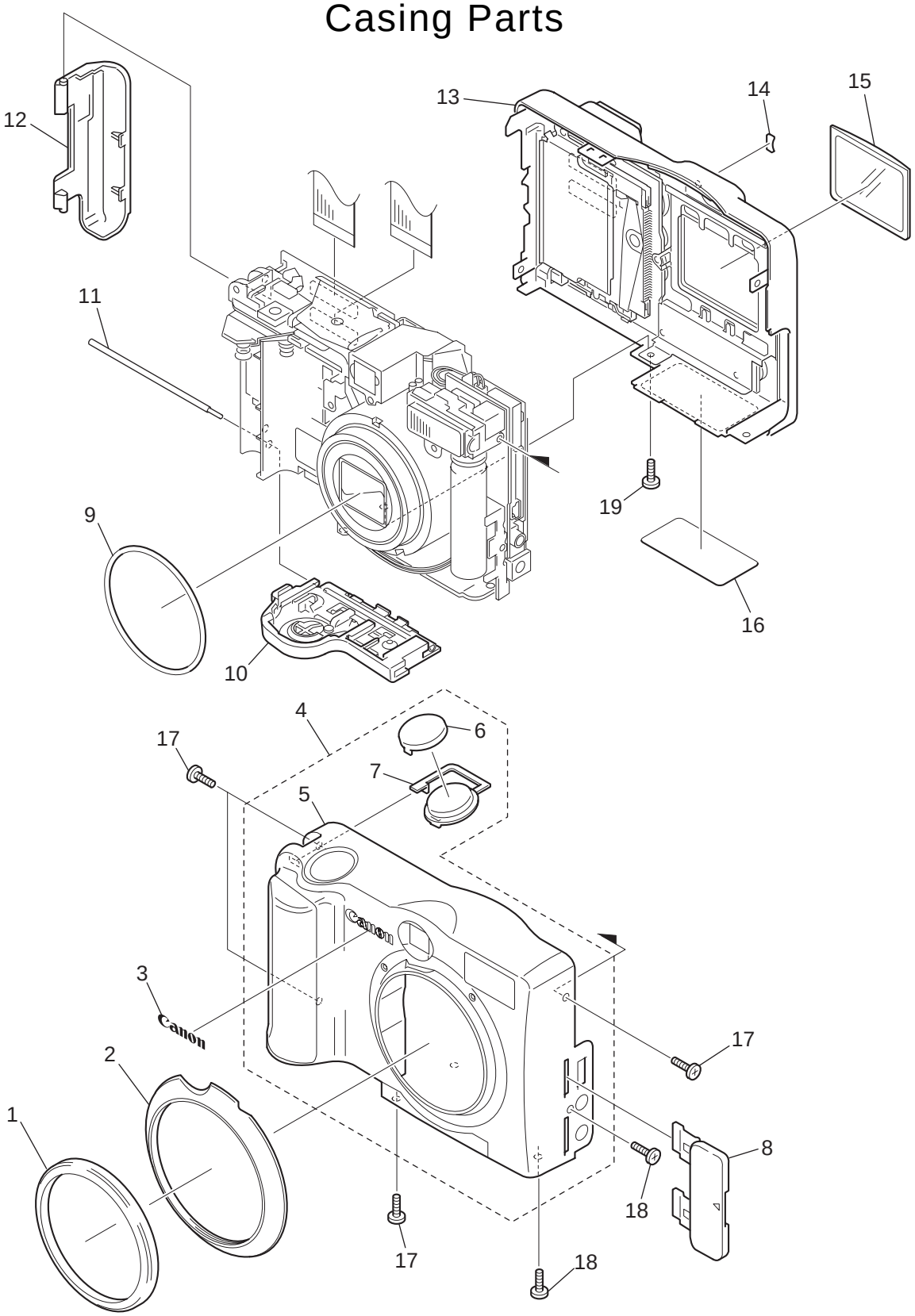
Pg1

Casing Parts



PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CD1-3501-000	B	1	RING, SCREW	A20/A10
2	CD1-3476-000	B	1	RING, DECORATION	A20
	CD1-3414-000	B	1	RING, DECORATION	A10
3	CD1-3514-000	B	1	PLATE, LOGO	A20/A10
4	CM1-1175-000	B	1	FRONT COVER UNIT	A10
5	CM1-1163-000	B	1	FRONT COVER UNIT	A20
6	CD1-3790-000	B	1	CAP, RELEASE	A20
7	CD1-3413-000	B	1	BASE, RELEASE	A20
8	CD1-3477-000	B	1	COVER, CONNECTOR	A20/A10
9	CD1-3432-000	C	1	SHEET, LENS BARREL	A20/A10
10	CM1-1166-000	B	1	BATTERY COVER UNIT	A20
	CM1-1176-000	B	1	BATTERY COVER UNIT	A10
11	CD1-3486-000	C	1	BAR, BATTERY COVER	A20/A10
12	CD1-3478-000	B	1	COVER, CF	A20/A10
13	CM1-1164-000	B	1	REAR COVER UNIT	A20/A10
14	CD1-3521-000	B	1	COVER, HOLE	A20/A10
15	CD1-3494-000	B	1	WINDOW, LCD	A20/A10
16	CY1-6101-000	B	1	PLATE, BODY NUMBER (J)	A20 (FOR JAPAN)
	CY1-6102-000	B	1	PLATE, BODY NUMBER (N)	A20 (FOR USA/CANADA)
	CY1-6103-000	B	1	PLATE, BODY NUMBER (E)	A20 (FOR EUROPE)
	CY1-6104-000	B	1	PLATE, BODY NUMBER (O)	A20 (FOR ASIA/AUSTRARIA)
	CY1-6105-000	B	1	PLATE, BODY NUMBER (J)	A10 (FOR JAPAN)
	CY1-6106-000	B	1	PLATE, BODY NUMBER (N)	A10 (FOR USA/CANADA)
	CY1-6107-000	B	1	PLATE, BODY NUMBER (E)	A10 (FOR EUROPE)
	CY1-6108-000	B	1	PLATE, BODY NUMBER (O)	A10 (FOR ASIA/AUSTRARIA)
17	CD1-3791-000	F	4	SCREW	A20/A10
18	CD1-3793-000	F	2	SCREW	A20/A10
19	CD1-3795-000	F	1	SCREW	A20/A10

CLASS凡例

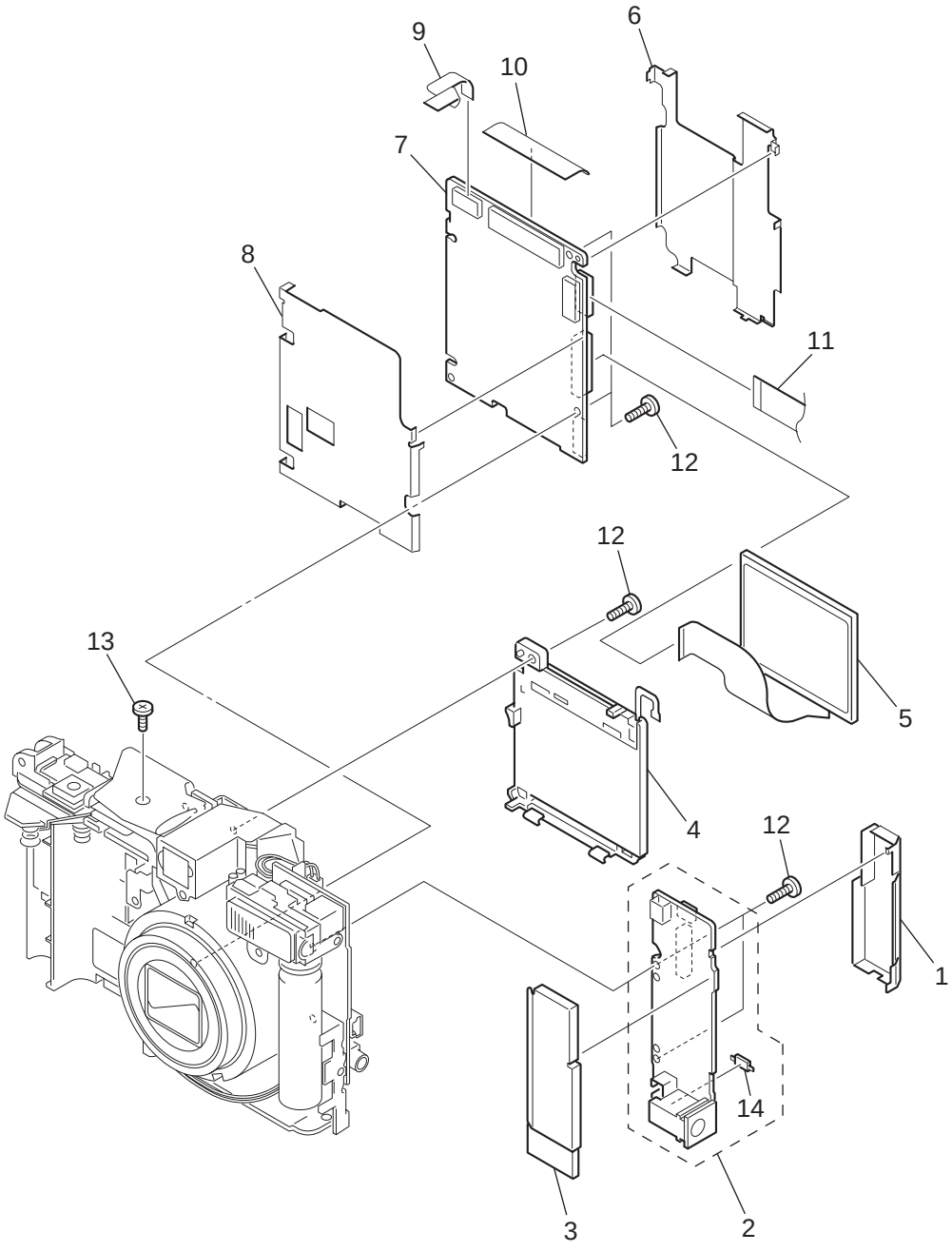
A: 使用頻度　高
B: 使用頻度　中
C: 使用頻度　低
D: 安全規格部品
E: 消耗部品
F: 標準ネジ、ワッシャー
S: 供給制限品

Category of CLASS

A: Frequency of use: High
B: Frequency of use: Middle
C: Frequency of use: Low
D: Safety-related critical parts
E: Consumable parts
F: Standard screws and washers
S: Supply of the parts is limited

Pg2

Internal Parts-1

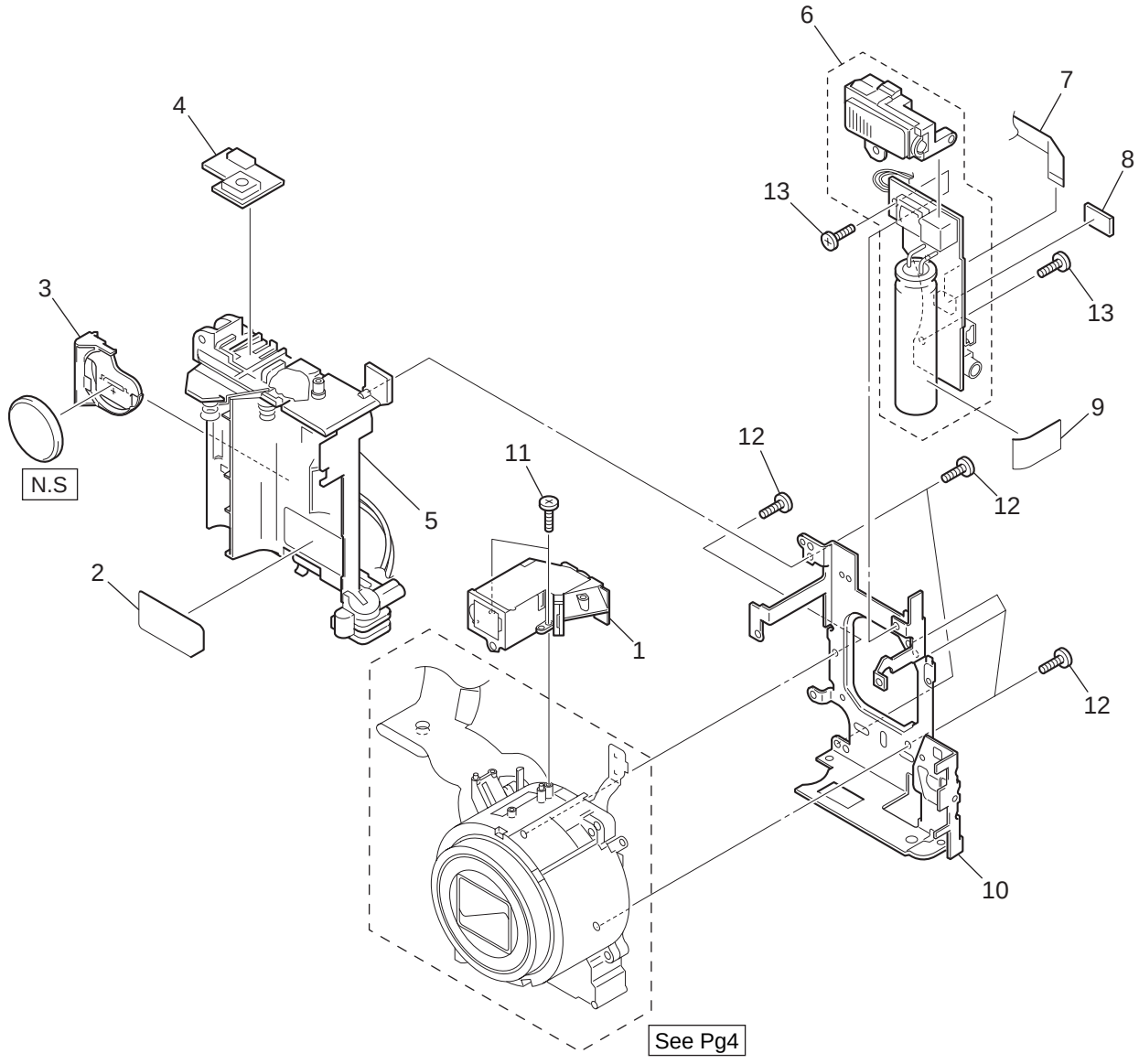


PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CD1-3510-000	C	1	CASE, DC/DC SHIELD 2	A20/A10
2	CM1-1168-000	C	1	DC/DC PCB ASS'Y	A20
	CM1-1179-000	C	1	DC/DC PCB ASS'Y	A10
3	CD1-3509-000	C	1	CASE, DC/DC SHIELD 1	A20/A10
4	WG2-5213-000	C	1	PANEL, LCD	A20/A10
	WG2-5213-001	C	1	PANEL, LCD (SELECTION)	A20/A10
5	CM1-1172-000	C	1	BACK LIGHT UNIT	A20/A10
6	CD1-3508-000	C	1	CASE, MAIN SHIELD 2	A20/A10
7	CM1-1167-000	C	1	MAIN PCB ASS'Y	A20
	CM1-1177-000	C	1	MAIN PCB ASS'Y	A10
8	CD1-3507-000	C	1	CASE, MAIN SHIELD 1	A20/A10
9	CK2-1204-000	C	1	FPC, M-R	A20/A10
10	CD1-3800-000	C	1	SHEET, EM 2	A20/A10
11	CK2-1202-000	C	1	FPC, M-D	A20/A10
12	CD1-3798-000	F	5	SCREW	A20/A10
13	CD1-3441-000	F	1	SCREW	A20/A10
14	WD1-5063-000	C	1	FUSE, MATSU.DENKI UNHH205	A20/A10

Pg3

Internal Parts-2

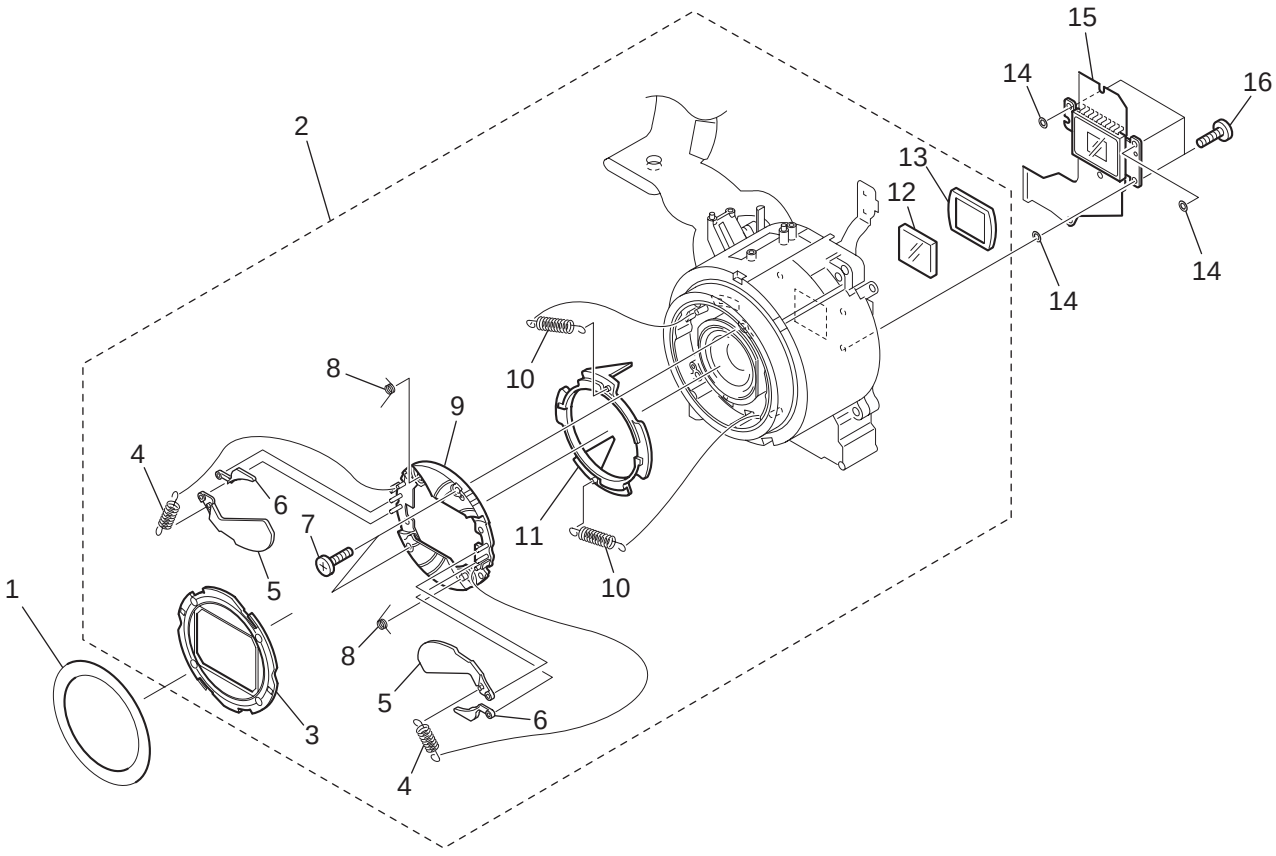


PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CM1-1180-000	B	1	FINDER UNIT	A20/A10
2	CD1-3511-000	B	1	LABEL, BATTERY	A20/A10
3	CD1-3479-000	B	1	HOLDER, LITHIUM BATTERY	A20/A10
4	CM1-1171-000	C	1	RLS PCB ASS'Y	A20/A10
5	CM1-1165-000	C	1	BATTERY BOX UNIT	A20/A10
6	CM1-1169-000	C	1	FLASH UNIT	A20
6	CM1-1178-000	C	1	FLASH UNIT	A10
7	CK2-1203-000	C	1	FPC, M-S	A20/A10
8	CD1-3799-000	C	1	SHEET, EM 1	A20/A10
9	CD1-3700-000	C	1	LABEL, HIGH VOLT. CAUTION	A20/A10
10	CD1-3473-000	C	1	FRAME, MAIN	A20/A10
11	XA4-9140-407	F	2	SCREW	A20/A10
12	XA4-9170-409	F	6	SCREW	A20/A10
13	CD1-3798-000	F	2	SCREW	A20/A10

Pg4

OPTICAL UNIT

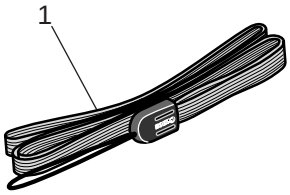


PARTS LIST

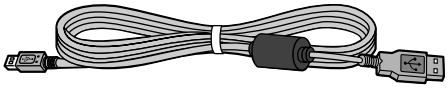
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CD1-3452-000	B	1	PLATE, LENS	A20/A10
2	CY1-6110-000	B	1	OPTICAL UNIT	A20
	CY1-6111-000	B	1	OPTICAL UNIT	A10
3	CD1-3451-000	C	1	CAP, LENS BARREL	A20/A10
4	CS8-5228-000	C	2	SPRING, BARRIER CLOSE	A20/A10
5	CD1-3449-000	B	2	PLATE, BARRIER 1	A20/A10
6	CD1-3450-000	B	2	PLATE, BARRIER 2	A20/A10
7	XA4-9140-359	F	2	SCREW	A20/A10
8	SC8-6159-000	C	2	SPRING, BARRIER PLATE 2	A20/A10
9	CD1-3448-000	C	1	BASE, BARRIER	A20/A10
10	CS8-5229-000	C	2	SPRING, BARRIER OPEN	A20/A10
11	CD1-3447-000	C	1	RING, BARRIER DRIVE	A20/A10
12	YN1-1780-000	C	1	FILTER, IR	A20
	YN1-1801-000	C	1	FILTER, IR	A10
13	FC2-9355-000	C	1	RUBBER, CCD	A20/A10
14	CD1-3443-000	C	3	WASHER, CCD	A20/A10
15	CY1-6092-000	C	1	CCD UNIT	A20
	CY1-6093-000	C	1	CCD UNIT	A10
16	FC3-0021-000	F	3	SCREW, CCD	A20/A10

Accessories-1

Wrist Strap WS-200

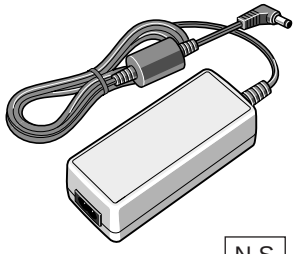


USB Interface Cable IFC-300PCU



N.S

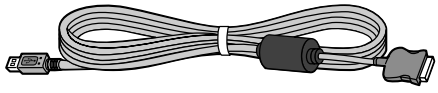
Compact Power Adapter CA-PS500



N.S

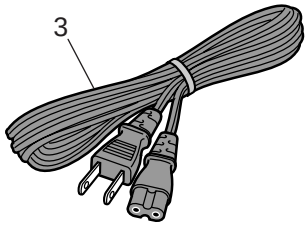
Canon Digital Camera Solution Disk

Direct Interface Cable DIF-100

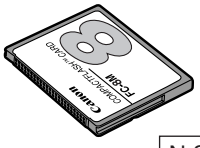


N.S

AC Cable

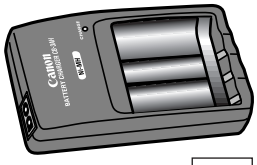


CF Card FC-8M



N.S

Battery Charger CB-3AH

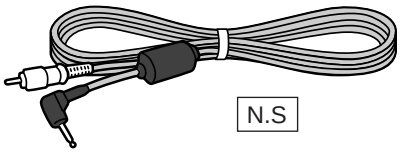


N.S

Soft Case SC-PS600

N.S

Video Cable VC-100



N.S

NiMH Battery NB4-100

N.S

N.S : N.S Stand for No Stock (Product available)

PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	C84-1060-000	B	1	WRIST STRAP WS-200	
2	C84-1061-000	S	1	CD-ROM, SOLUTION DISK 4.0 (J/E)	Expect EUROPE
3	WT3-5062-000	C	1	AC CABLE (J)	FOR JAPAN
	WT3-5063-000	C	1	AC CABLE (N)	FOR USA/CANADA
	WT3-5064-000	C	1	AC CABLE (E)	FOR EUROPE/ASIA
	WT3-5115-000	C	1	AC CABLE (B)	FOR ASIA
	WT3-5066-000	C	1	AC CABLE (A)	FOR AUSTRARIA

Accessories-2

Conversion Lens Adapter LA-DC52

N.S

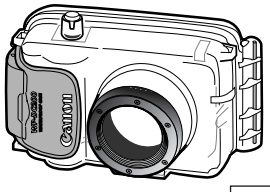
Wide Converter WC-DC52

N.S

Close-up Lens 250D (52mm)

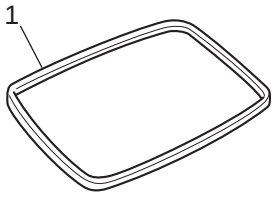
N.S

Waterproof Case WP-DC200

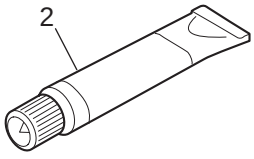


N.S

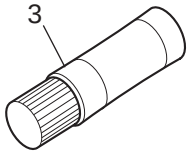
Waterproof Seal



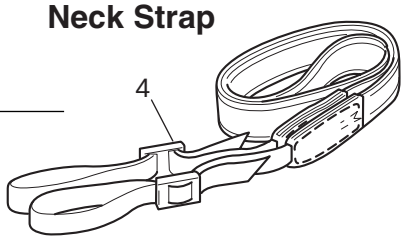
Silicone Grease



Anti-Condesation Solution



Neck Strap



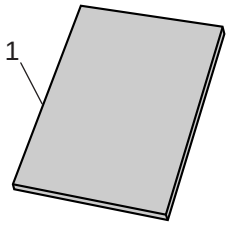
N.S : N.S Stand for No Stock (Product available)

PARTS LIST

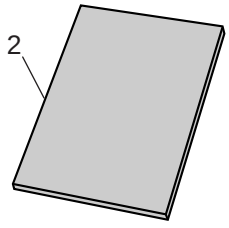
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CY1-6100-000	B	1	PACKING, RUBBER, WP-DC200	
2	DY9-3029-000	C	1	GREASE, PACKING	
3	DY9-3028-000	C	1	PROTECTOR, MOISTURE	
4	CY1-6099-000	B	1	NECK STRAP	

Accessories-3

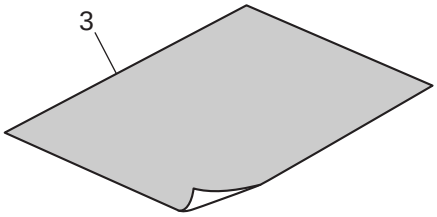
Camera User Guide



Software Starter Guide



System Map

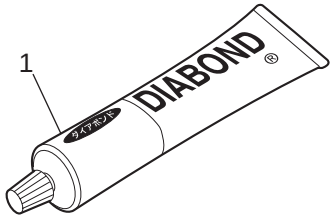


PARTS LIST

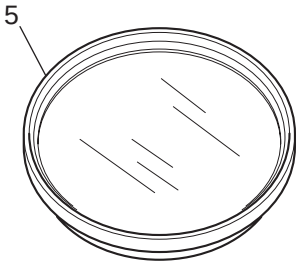
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CDI-J016-010	S	1	I.BOOK (J) PS A20/A10	FOR JAPAN
	CDI-E017-010	S	1	I.BOOK (E) PS A20/A10	FOR USA/CANADA/ASIA/ AUSTRARIA
	CDI-F015-010	S	1	I.BOOK (F) PS A20/A10	FOR CANADA
	CDI-S013-010	S	1	I.BOOK (S) PS A20/A10	FOR USA
2	CDI-J014-010	S	1	SOFTWARE GUIDE (J) PS A20/A10	FOR JAPAN
	CDI-E015-010	S	1	SOFTWARE GUIDE (E) PS A20/A10	FOR USA/CANADA/ASIA/ AUSTRARIA
	CDI-F014-010	S	1	SOFTWARE GUIDE (F) PS A20/A10	FOR CANADA
	CDI-S012-010	S	1	SOFTWARE GUIDE (S) PS A20/A10	FOR USA
3	CDI-J017-010	S	1	SYSTEM MAP (J) PS A20/A10	FOR JAPAN
	CDI-E018-010	S	1	SYSTEM MAP (E) PS A20/A10	FOR USA/CANADA/ASIA/ AUSTRARIA
	CDI-F016-010	S	1	SYSTEM MAP (F) PS A20/A10	FOR CANADA
	CDI-S014-010	S	1	SYSTEM MAP (S) PS A20/A10	FOR USA

Service Tools

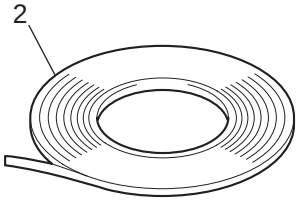
DIA BOND NO.1663G BLACK



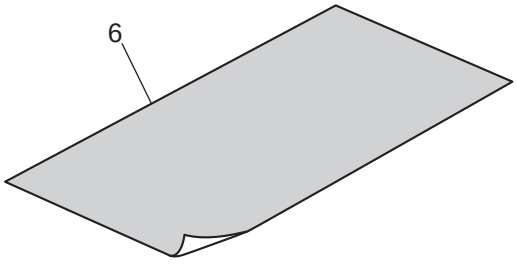
W-10 Filter



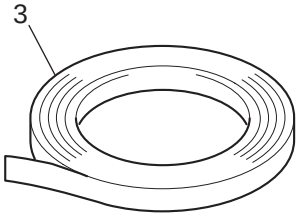
Adhesive Tape SONY T4000

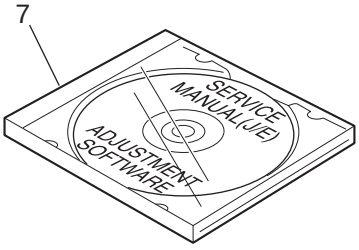


18% Gray Chart

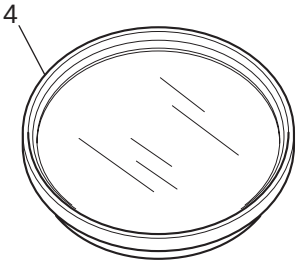


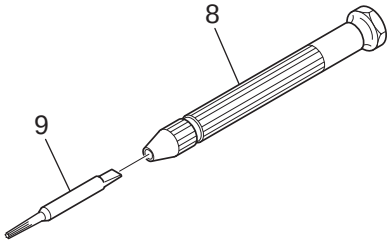
Adhesive Tape 3M NO.56





C-12 Filter





PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CY9-8129-000	Y	1	BOND, DIA BOND NO.1663G BLACK	
2	CY4-6012-000	Y	1	ADHESIVE TAPE, SONY T4000	6mm × 50m Roll
3	CY4-6018-000	Y	1	ADHESIVE TAPE, 3M NO.56	15mm × 66m Roll
4	DY9-2029-000	Y	1	FILTER, C-12	
5	CY9-1543-000	Y	1	FILTER, W-10	
6	CY4-6016-000	Y	1	CHART, 18% GRAY	
7	CY8-4371-031	Y	1	CD-ROM, SERVICE MANUAL (J/E)	
8	CY9-7014-001	Y	1	SCREW DRIVER HANDLE (TB41-1)	
9	CY9-1548-000	Y	1	BIT, HAND DRILL, TORX TX75A (T3)	

CHAPTER 5. DIAGRAMS

CONTENTS

5-1. INTERCONNECTION DIAGRAM
5-2. BLOCK DIAGRAMS
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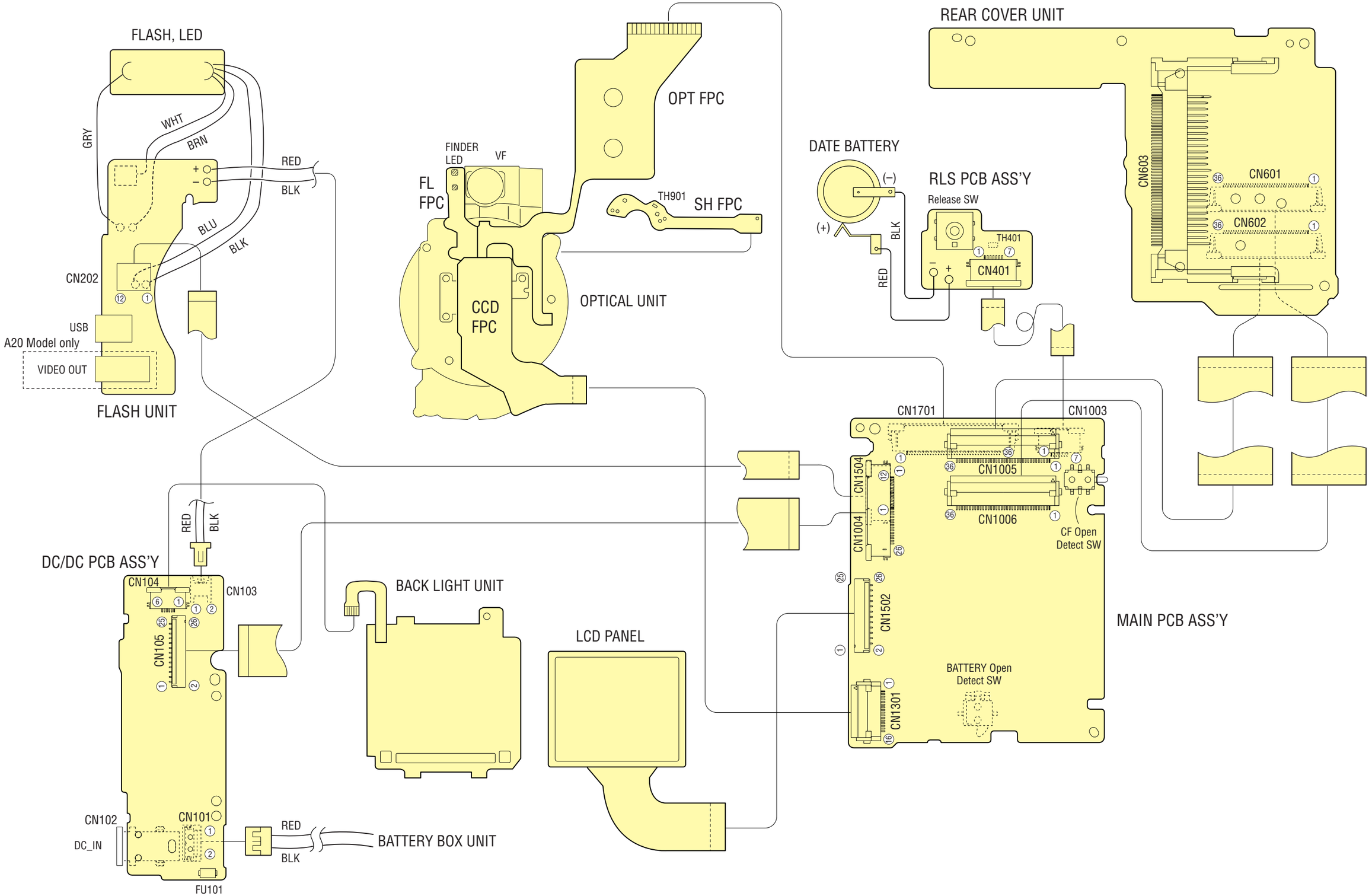
  5-2-2. MAIN PCB ASS'Y (1/3)
  5-2-3. MAIN PCB ASS'Y (2/3)
  5-2-4. MAIN PCB ASS'Y (3/3)
  5-2-5. DC/DC PCB ASS'Y
5-3. P.C.B. DIAGRAMS
  5-3-1. MAIN PCB ASS'Y
  5-3-2. DC/DC PCB ASS'Y
  5-3-3. FLASH UNIT
  5-3-4. REAR COVER UNIT
  5-3-5. RLS PCB ASS'Y

5-1. INTERCONNECTION DIAGRAM



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CONNECTORS

MAIN PCB ASS'Y

CN1003	
1	M_GND
2	SCAN
3	SW1
4	SW2
5	BUT_BATT
6	VBATTEMP
7	C_GND

CN1004	
1	Not Connected
2	VDD2
3	VEE2
4	VCC2
5	C_GND
6	C_GND
7	C_GND
8	C_GND
9	VBATT
10	VCC1
11	VCC1
12	VCC1
13	VCC1A
14	VDD34
15	VCC34
16	E1PLAT
17	E2LAT
18	E3LAT
19	E4LAT
20	VCC1M
21	VCC1M
22	VCC1M
23	LED_BL
24	M_GND
25	M_GND
26	M_GND

CN1005	
1	M_GND
2	C_GND
3	SET
4	MINUS
5	PLUS
6	MENU
7	SCAN
8	POWER
9	VBATT_R
10	EXP/WB
11	DISP
12	DIAL0
13	SCON
14	DIAL1
15	DIAL2
16	C_GND
17	C_GND
18	/CD1
19	D03
20	D11
21	D04
22	D12
23	D05
24	D13
25	D06
26	D14
27	D07
28	D15
29	/CE1
30	/CE2
31	A10
32	/VS1
33	/OE
34	/IORD
35	A09
36	/IOWR

CN1006	
1	M_GND
2	C_GND
3	BUZZER
4	TELE
5	WIDE
6	C_GND
7	C_GND
8	/CD2
9	D10
10	/IOIS16
11	D09
12	D02
13	D08
14	D01
15	Not Connected
16	D00
17	Not Connected
18	A00
19	/REG
20	A01
21	Not Connected
22	A08
23	/WE
24	A07
25	IREQ
26	VCC1
27	VCC1
28	A06
29	Not Connected
30	A05
31	/VS2
32	A04
33	RESET
34	A03
35	/WAIT
36	A02

CN1301	
1	C_GND (LG)
2	VOUT (VO)
3	C_GND (PW)
4	VDD (OD)
5	SUB (SUB)
6	CSUB (OG)
7	VL (PT)
8	RG (R)
9	H2 (H2)
10	H1 (H1)
11	V1B (V1)
12	V1A (V5)
13	V2 (V2)
14	V3B (V3)
15	V3A (V6)
16	V4 (V4)

( ) : A10 Model

CN1502	
1	Not Connected
2	RGT
3	BLUE
4	RED
5	GREEN
6	PSIG
7	HCK1
8	HCK2
9	CEXT/REXT
10	Not Connected
11	REF
12	HST
13	WIDE
14	Not Connected
15	VSSG
16	VDDG
17	VSS
18	VDD
19	DWN
20	EN
21	VCK
22	VST
23	COM
24	Not Connected

CN1504	
1	UV_GND
2	VBUS
3	D–
4	D+
5	VIDEO
6	VC_DET
7	STSP
8	VCHGLVL
9	EFCHG
10	LEDS_AN
11	LED_SELF
12	C_GND

CN1701	
1	ZMRST_EM
2	ZMRST_CO
3	ZMRST_AN
4	ZMRST_CA
5	LEDG_CA
6	LEDA_CA
7	LEDY_CA
8	LEDY_AN
9	LEDA_AN
10	LEDG_AN
11	AFRST_EM
12	AFRST_CO
13	AFRST_AN
14	AFRST_CA
15	ZMO–
16	ZMO–
17	ZMO+
18	ZMO+
19	AFA+
20	AFA–
21	AFB–
22	AFB+
23	ZMPO0_EM
24	ZMPO0_CA
25	ZMPO0_AN
26	ZMPO0_CO
27	ZMPO1_AN
28	ZMPO1_CA
29	ZMPO1_CO
30	ZMPO1_EM
31	IR+
32	IR–
33	SH+
34	SH–
35	THM2
36	THM1

RLS PCB ASS'Y

CN401	
1	M_GND
2	SCAN
3	SW1
4	SW2
5	BUT_BATT
6	VBATTEMP
7	C_GND

REAR COVER UNIT

CN601	
1	M_GND
2	C_GND
3	SET
4	MINUS
5	PLUS
6	MENU
7	SCAN
8	POWER
9	VBATT_R
10	EXP/WB
11	DISP
12	DIAL0
13	SCON
14	DIAL1
15	DIAL2
16	C_GND
17	C_GND
18	/CD1
19	D03
20	D11
21	D04
22	D12
23	D05
24	D13
25	D06
26	D14
27	D07
28	D15
29	/CE1
30	/CE2
31	A10
32	/VS1
33	/OE
34	/IORD
35	A09
36	/IOWR

CN602	
1	M_GND
2	C_GND
3	BUZZER
4	TELE
5	WIDE
6	C_GND
7	C_GND
8	/CD2
9	D10
10	/IOIS16
11	D09
12	D02
13	D08
14	D01
15	Not Connected
16	D00
17	Not Connected
18	A00
19	/REG
20	A01
21	Not Connected
22	A08
23	/WE
24	A07
25	IREQ
26	VCC1
27	VCC1
28	A06
29	Not Connected
30	A05
31	/VS2
32	A04
33	RESET
34	A03
35	/WAIT
36	A02

CN603	
1	GND
2	D03
3	D04
4	D05
5	D06
6	D07
7	/CE1
8	A10
9	/OE
10	A09
11	A08
12	A07
13	VCC
14	A06
15	A05
16	A04
17	A03
18	A02
19	A01
20	A00
21	D00
22	D01
23	D02
24	/IOIS16
25	/CD2
26	/CD1
27	D11
28	D12
29	D13
30	D14
31	D15
32	/CE2
33	/VS1
34	/IORD
35	/IOWR
36	/WE
37	IREQ
38	VCC
39	Not Connected
40	/VS2
41	RESET
42	/WAIT
43	Not Connected
44	/REG
45	Not Connected
46	Not Connected
47	D08
48	D09
49	D10
50	GND

FLASH UNIT

CN201	
1	VBATT
2	GND

CN202	
1	C_GND
2	LED_SELF
3	LEDS_AN
4	EFCHG
5	VCHGLVL
6	STSP
7	VC_DET
8	VIDEO
9	D+
10	D–
11	VBUS
12	UV_GND

CN203	
1	UV_GND
2	VIDEO
3	VC_DET

CN204	
1	VBUS
2	D–
3	D+
4	Not Connected
5	UV_GND

DC/DC PCB ASS'Y

CN101	
1	BATT+
2	BATT–

CN102	
1	VDC_IN
2	BATT-_SEPA
3	GND

CN103	
1	VBATT
2	GND

CN104	
1	LED_BL
2	LED_BL
3	LED_BLA4
4	LED_BLA3
5	LED_BLA2
6	Not Connected

CN105	
1	Not Connected
2	VDD2
3	VEE2
4	VCC2
5	C_GND
6	C_GND
7	C_GND
8	C_GND
9	VBATT
10	VCC1
11	VCC1
12	VCC1
13	VCC1A
14	VDD34
15	VCC34
16	E1PLAT
17	E2LAT
18	E3LAT
19	E4LAT
20	VCC1M
21	VCC1M
22	VCC1M
23	LED_BL
24	M_GND
25	M_GND
26	M_GND

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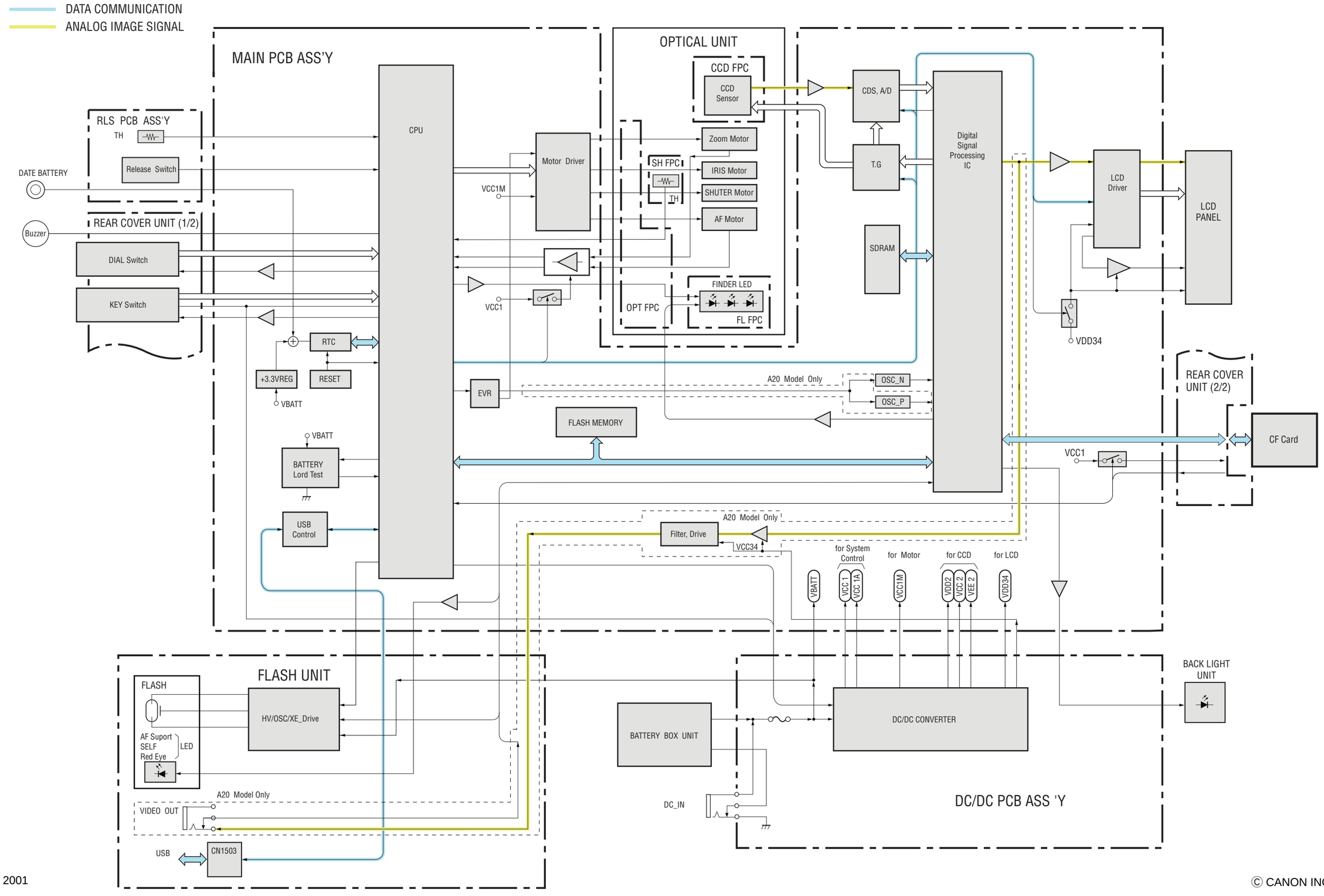
5-2. BLOCK DIAGRAMS

5-2-1. OVERALL



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DATA COMMUNICATION
ANALOG IMAGE SIGNAL

MAIN PCB ASS'Y (1/3)

OPTICAL UNIT 1/2
CCD FPC
( ) : A10 Model
CCD Sensor
Vout (Vo) 10 (4)
V1A (V5) 7 (10)
V1B (V1) 8 (12)
V2 (V2) 5 (13)
V3A (V6) 3 (11)
V3B (V3) 4 (14)
V4 (V4) 2 (15)
SUB (SUB) 14 (16)
CSUB (OG) 15 (6)
H1 (H1) 18 (8)
H2 (H2) 19 (7)
RG (R) 17 (2)
VDD (OD) 12 (1)
VL (PT) 16 (9)
C_GND (LG) 13 (5)

CN1301
2 Vout (Vo)
12 V1A (V5)
11 V1B (V1)
13 V2 (V2)
15 V3A (V6)
14 V3B (V3)
16 V4 (V4)
5 SUB (SUB)
6 CSUB (OG)
10 H1 (H1)
9 H2 (H2)
8 RG (R)
4 VDD (OD)
7 VL (PT)
1 C_GND (LG)

Q1303 BUFFER 2SC4617
VDD2
C1317
C1335
C1336
C1332
C1341
R1335
R1342
C1334
A20 Model
A10 Model

IC1303 TG CXD2470R
V1A V1B V2 V3A V3B V4 SUB H1 H2 RG VDD VL
PBLK XSHP XSHD ADCLK HDI VDI CKI MCKO SSI SCK SEN
VDD

IC1302 CDS,A/D HD49236BF
CDSIN PBLK SPBLK SPSIG ADCLK CBP SDATA SCK CS
D0 D9
AVDD,DVDD
A10 Model
A20 Model
TG_HD
TG_VD
TG_CK
TG_MCK
CLP0B2
SDATA2
SCK2
TG_CS
AD_LD

Q1304 VSUB CONT DTC144EE
Q1302 SWITCH 2SA2018
Q1301 SWITCH DTC144EE

AD_D0
AD_D9
10

IC1011 (1/3) Digital Signal Processing IC MB87J4291BPT-G
CCD2 CCD11
YOUT1 RBOUT3 COUT2 P4L_2
SSGOUT4 SSGOUT5 SSGOUT0 SSGOUT1 TGCKO CCDCLK
P3_0
VDDH1-20 AVD1-3 VREF1-3 VDDL1-8 P3_4
CLP0B2 TG_HD TG_VD TG_CK TG_MCK
TG_HD
P4U_3
E3LAT
E4LAT

EX0 EX1 EX13
EX10 EX9 EX11 EX12 EX3
EX35 EX36 EX37 EX38

AVD
VCC1A_3
Q1507 2SA1774
Q1013 2SA1774
Q1011 2SA1774
Q10112 2SA1774
Q1512 XP4601
Q1011-Q1013 Q1507,Q1512 BUFFER
C1512
C1513
C1511

IC1502 LCD CONTROL CXA3572R
G/Y R/R-Y B/B-Y
R_OUT G_OUT B_OUT COM REF VST VSK EN DWN WIDE HST HCK1 HCK2 RGT PSIGOUT
SYNC_IN SCK SDAT SEN VCC1 VDD1,2 VCC2
SCK3 SDATA3 LCD_CS

CN1502
RED GREEN BLUE COM REF VST VCK EN DWN WIDE HST HCK1 HCK2 RGT VDD PSTG

LCD PANEL

VDD34
Q1508 REG. 2SC4617
Q1509 REG. 2SA4617
Q1506 SWITCH XPO3311
Q1514 BUFFER XP4601
Q1515 BUFFER XP4601

VCC34
LC FILTER
Q1516 BUFFER XP4601
IC1501 75Ω DRIVER BD7600FV
C1543
FILTER
BUFFER
STBY
C1508
VIDEO
VC_DET
A20 Model Only

CN1004
2 VDD2
4 VCC2
3 VEE2
10 12 VCC1
20 22 VCC1M
13 VCC1A
14 VDD34
15 VCC34
9 VBATT
16 E1PLAT
17 E2LAT
18 E3LAT
19 E4LAT
23 LED_BL

From DC/DC PCB ASS'Y
To DC/DC PCB ASS'Y

IC1301 +3.3V REG MM1385EN
IC1014 +2.5V REG MM1385NN
IC106 +3.0V REG MM1385HN
Q1014 2.5V REG CPH3114
IC1016 2.5V REG RN5RG25A
EXT VDD VO
VCC2 VCC1 VCC1M VCC1A VDD34 VCC34 VBATT POWER
VCC2_AD AVD VCC1A_3
E1LAT E2LAT E3LAT E4LAT
Q1010 LED Drive 2SC4617

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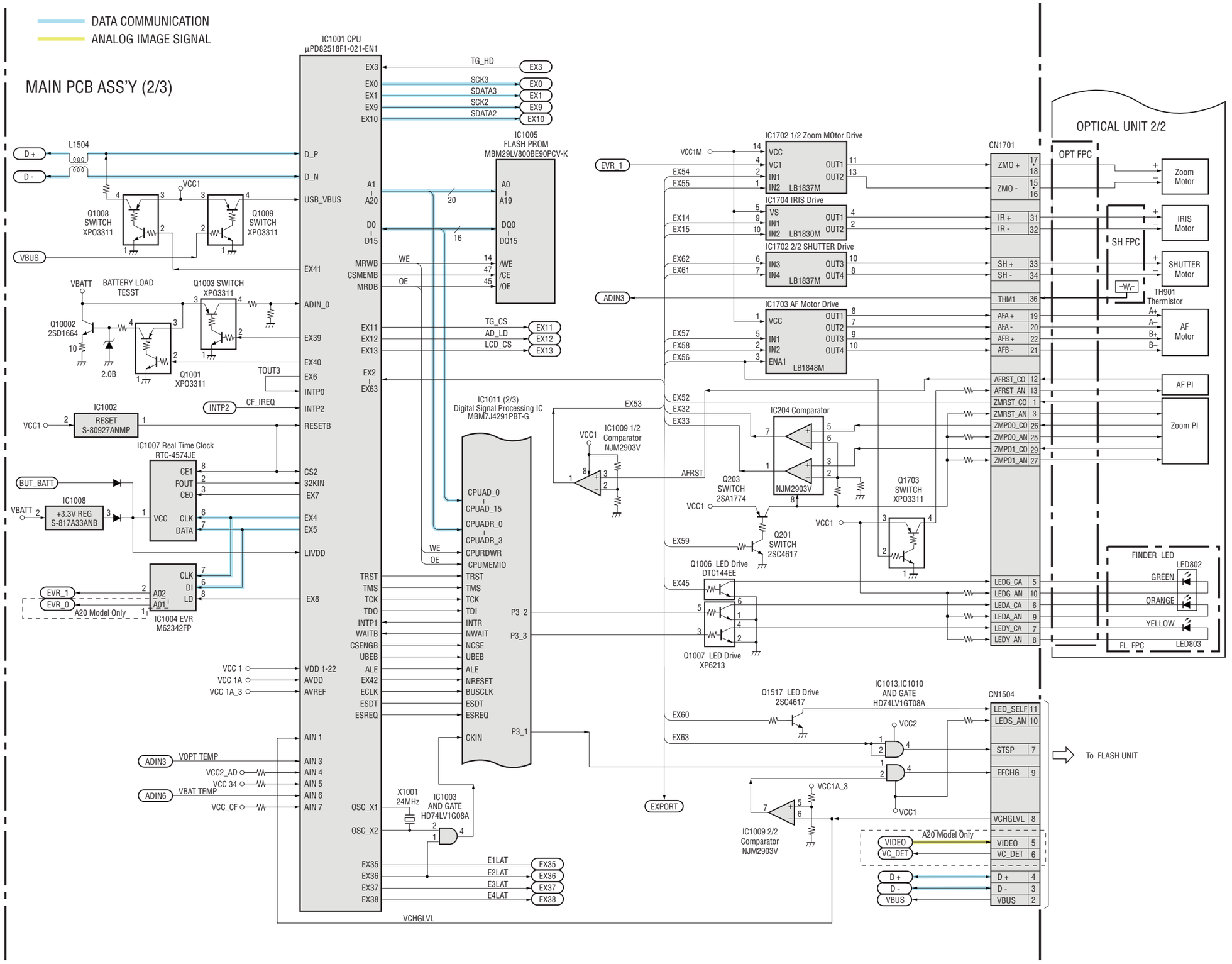

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DATA COMMUNICATION

MAIN PCB ASS'Y (3/3)

RLS PCB ASS'Y

TH401
BATTERY Temp. Detect

SW401
Release

DATE BATTERY

CN401

VBATTEMP	6	
SW1	3	
SW2	4	
SCAN	2	
BUT_BATT	5	

CN1003

6	VBATTEMP	
3	SW1	EX25
4	SW2	EX24
2	SCAN	
5	BUT_BATT	

ADIN 6
EXPORT
BUT_BATT

REAR COVER UNIT (1/2)

Mode DIAL Table

	DIAL0	DIAL1	DIAL2
Play	0	1	1
Stitch	1	0	0
Manual	1	0	1
Auto	1	1	1

DIAL0
DIAL1
DIAL2
SCON

CN601 (1/2)

DIAL0	12	
DIAL1	14	
DIAL2	15	
SCON	13	
VBATT_R	9	
POWER	8	
DISP	11	
SET	3	
MINUS	4	
PLUS	5	
MENU	6	
EXP/WB	10	
SCAN	7	

CN1005 (1/2)

12	DIAL0	EX48
14	DIAL1	EX49
15	DIAL2	EX50
13	SCON	
9	VBATT_R	
8	POWER	EX20
11	DISP	EX17
3	SET	EX16
4	MINUS	EX19
5	PLUS	EX18
6	MENU	EX51
10	EXP/WB	
7	SCAN	

EX47
EX44

Q1004
SWITCH Drive
XP6213

VBATT

POWER

POWER SW
DISP Button
SET Button
- Button
+ Button
MENU Button
EXP/WB Button

Q1005
Level Shift
XP03311

Q1015
CF POWER SW
HAT1053M

VCC_CF

Buzzer

CN602 (1/2)

BUZZER	3	
TELE	4	
WIDE	5	

CN1006 (1/2)

3	BUZZER	EX 2
4	TELE	EX22
5	WIDE	EX23

EX34
EX43

TELE Button
WIDE Button

Q1017,Q1016
DTC144EE

Q1018
2SC4617

Q1016-Q1018 : CF POWER CONT

EX28-31

EX27 SW1001 BATTERY Open Detect
EX26 SW1002 CF Open Detect

IC1011 (3/3)
Digital Signal Processing IC
MB87J4291BPT-G

IC1012
16M SDRAM
MB81F64324C-10FN

VCC1
VCC1-4
VCCQ1-8

X1002
14.31818MHz

X1003
14.1875MHz

EVR_0
A20 Model Only

INT P 2

CF_A_0-2
CF_A_3-10
CF_D_0-15

EX28
EX29
EX30
EX31

CN1006 (2/2)
CN1005 (2/2)

REAR COVER UNIT (2/2)

CN602
CN601

CN603

CF Card

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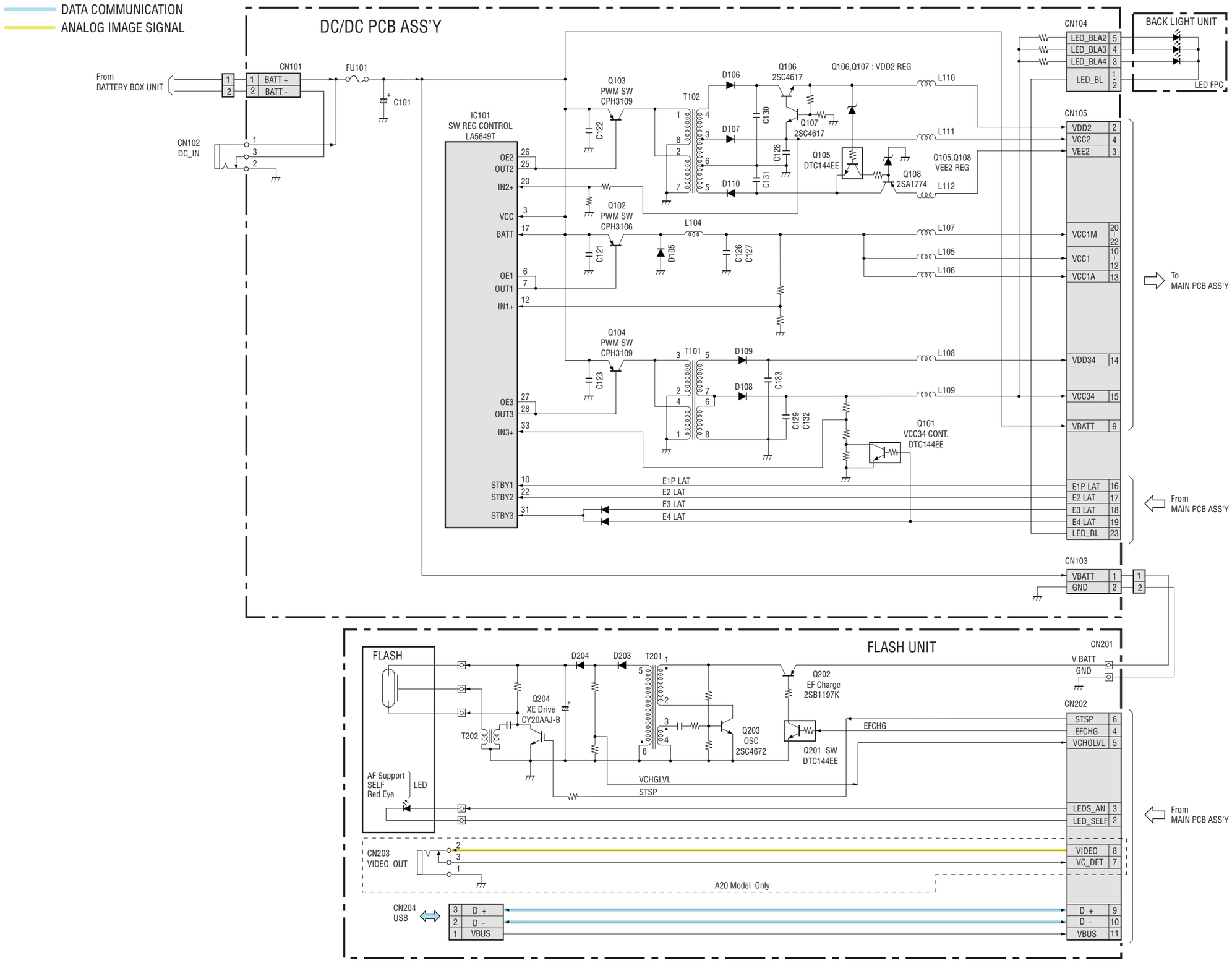
5-2-5. DC/DC PCB ASS'Y



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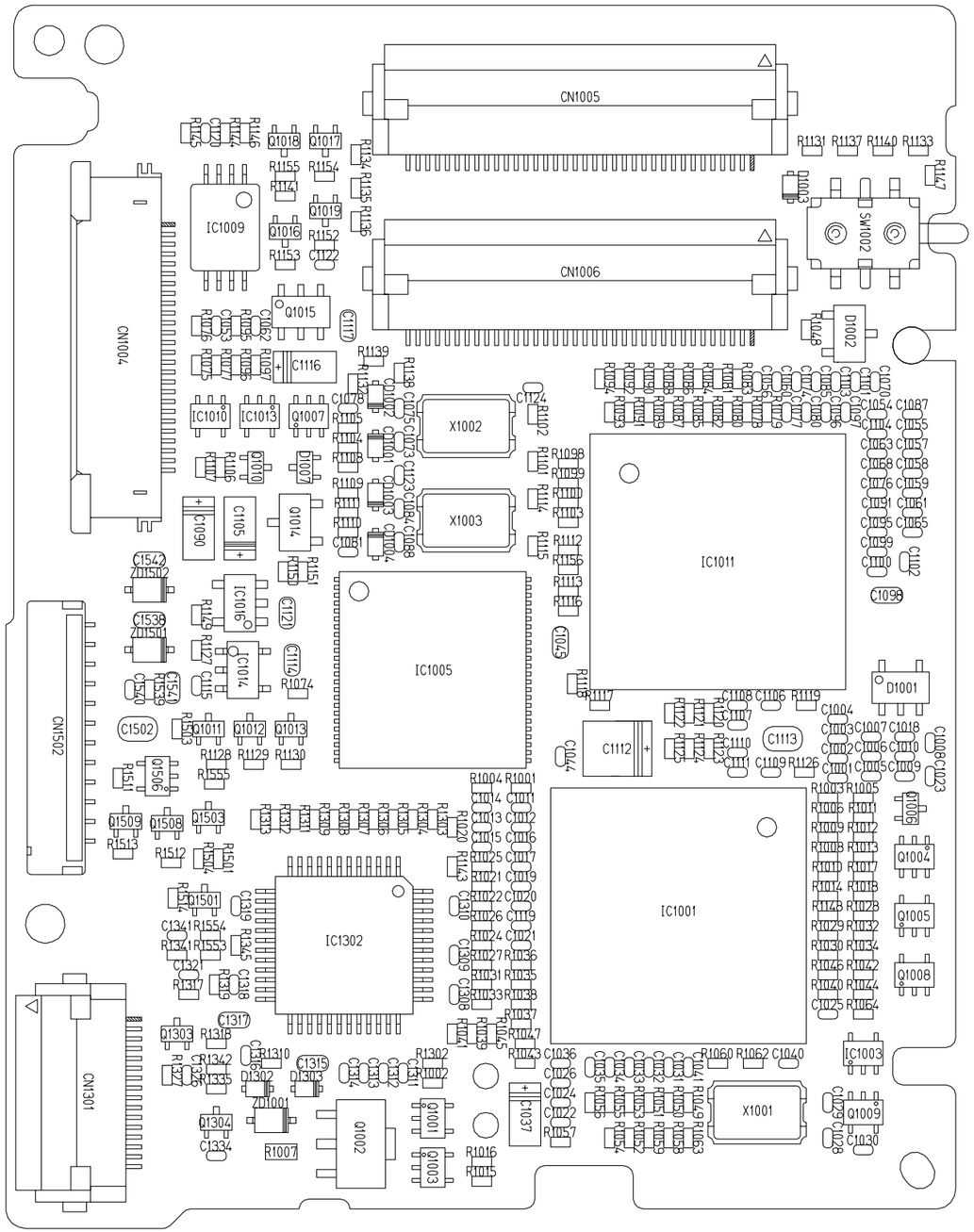
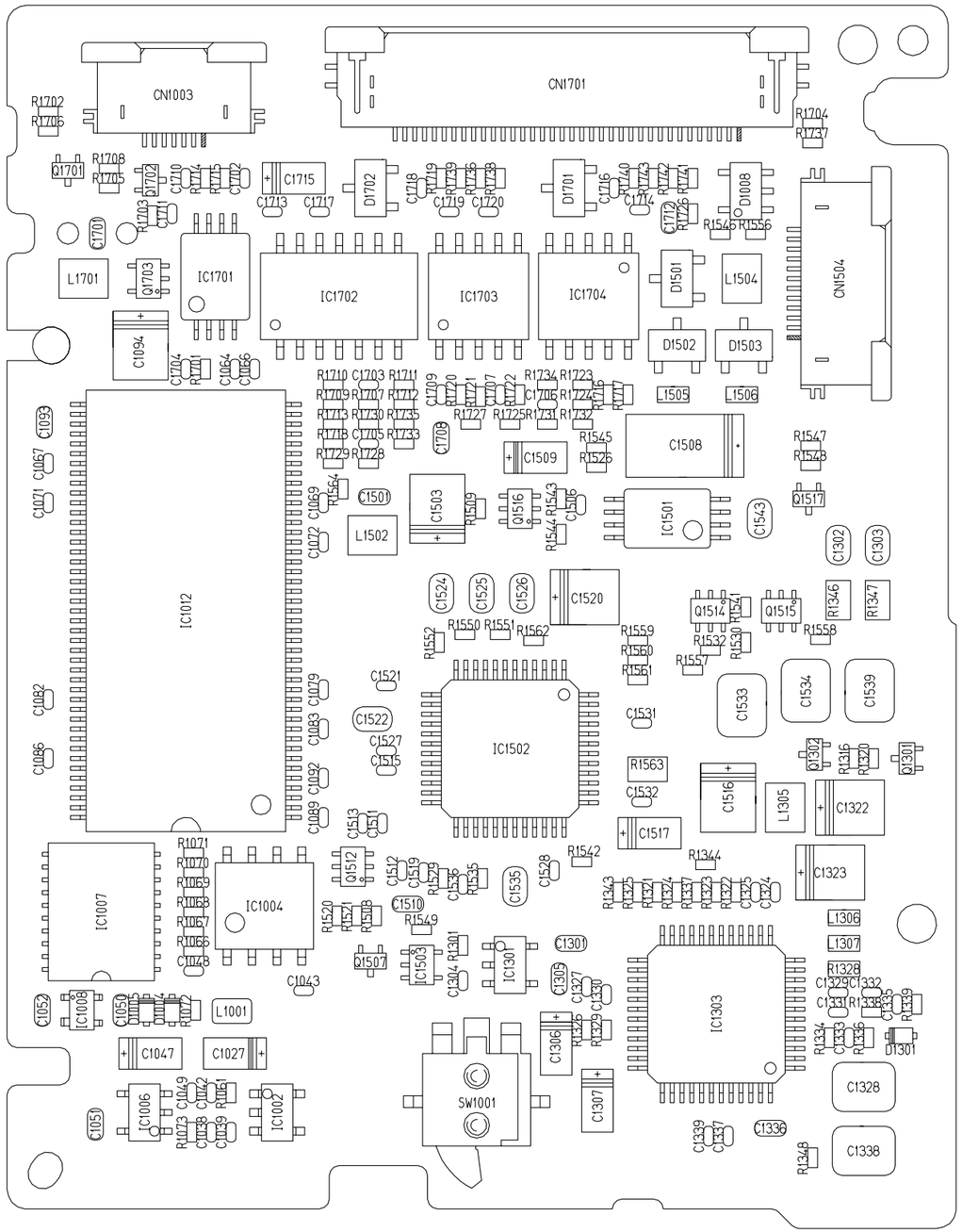
5-3. P.C.B. DIAGRAMS

5-3-1. MAIN PCB ASS'Y

MAIN PCB ASS'Y (SOLDERING SIDE)



MAIN PCB ASS'Y (COMPONENT SIDE)



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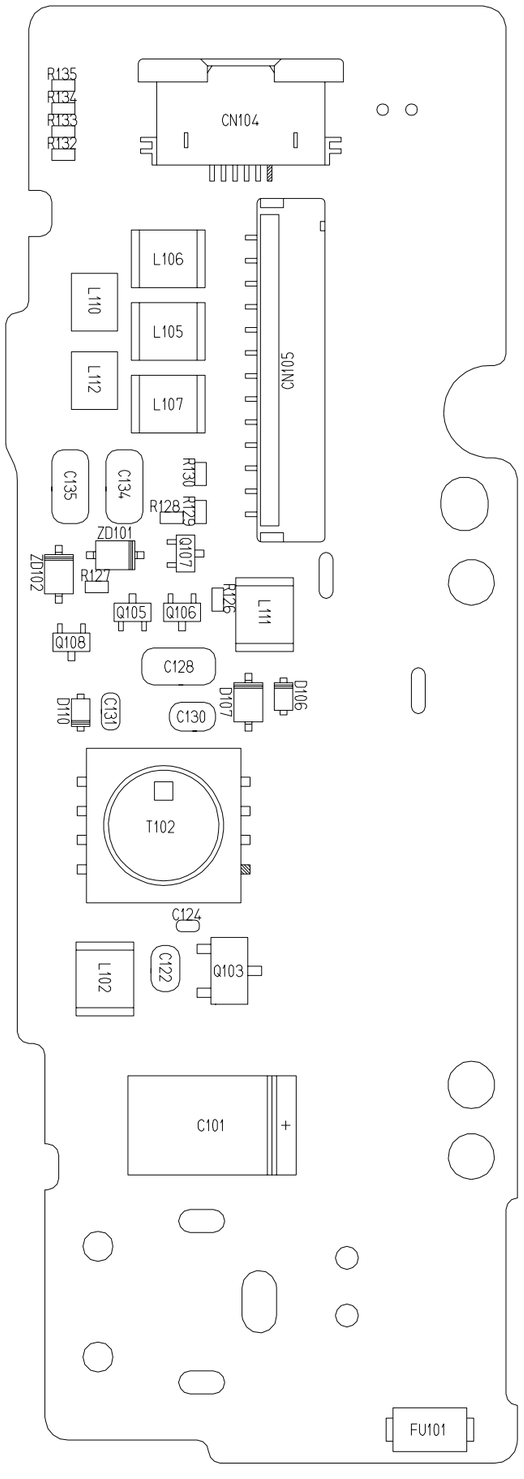
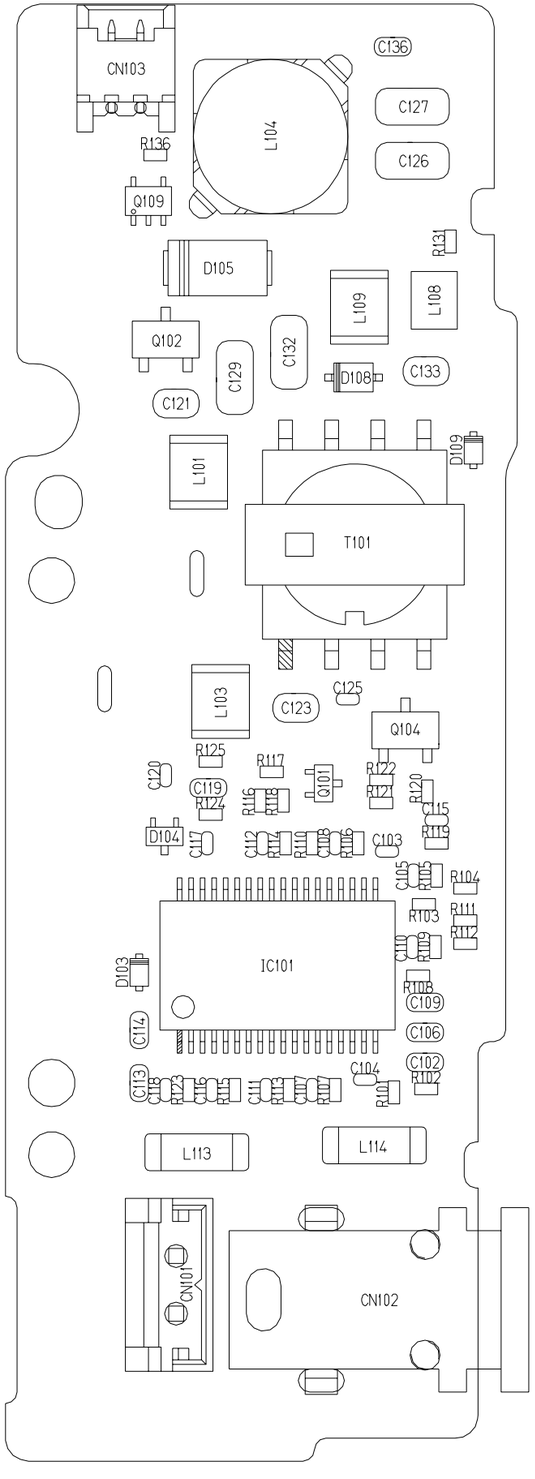
5-3-2. DC/DC PCB ASS'Y

DC/DC PCB ASS'Y (SOLDERING SIDE)



DC/DC PCB ASS'Y (COMPONENT SIDE)



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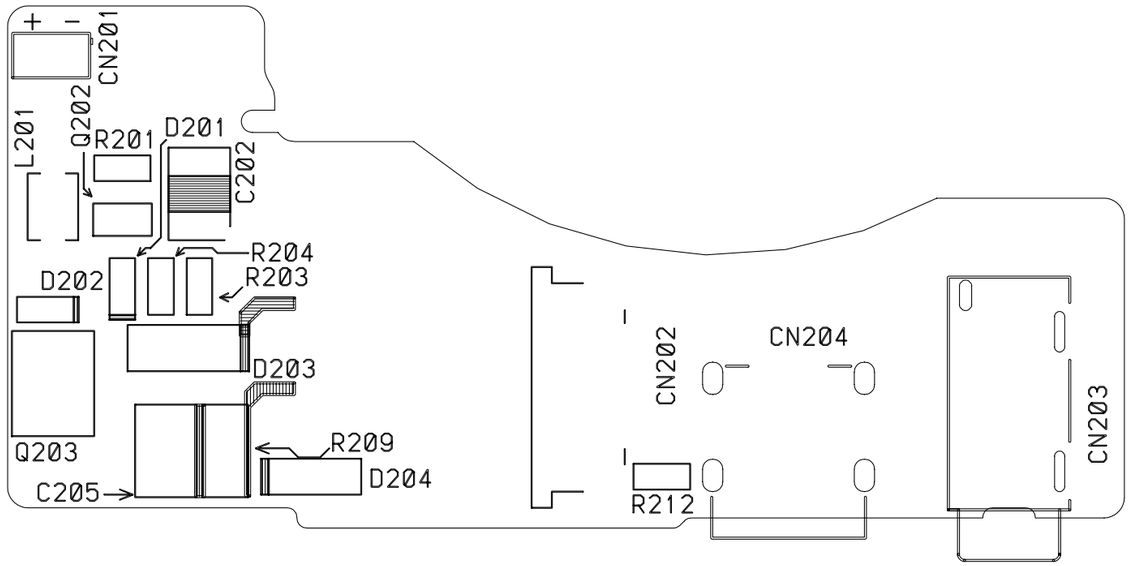
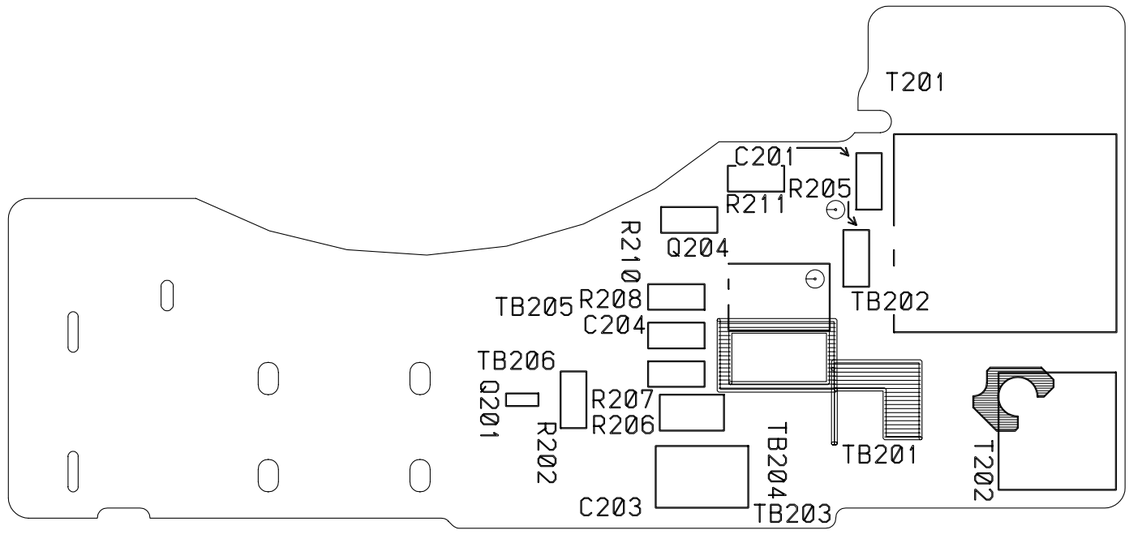
FLASH UNIT (SOLDERING SIDE)



FLASH UNIT (COMPONENT SIDE)



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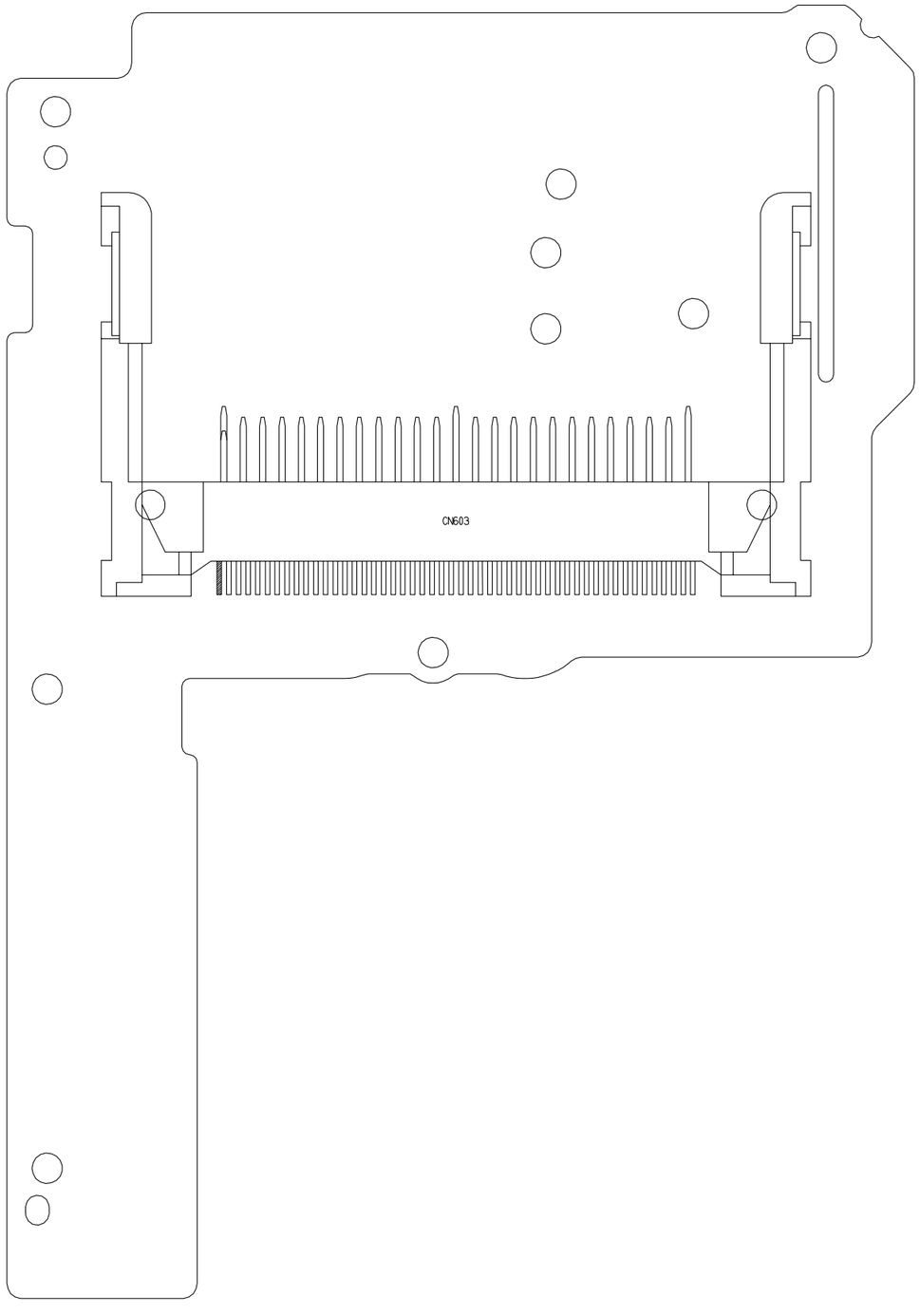
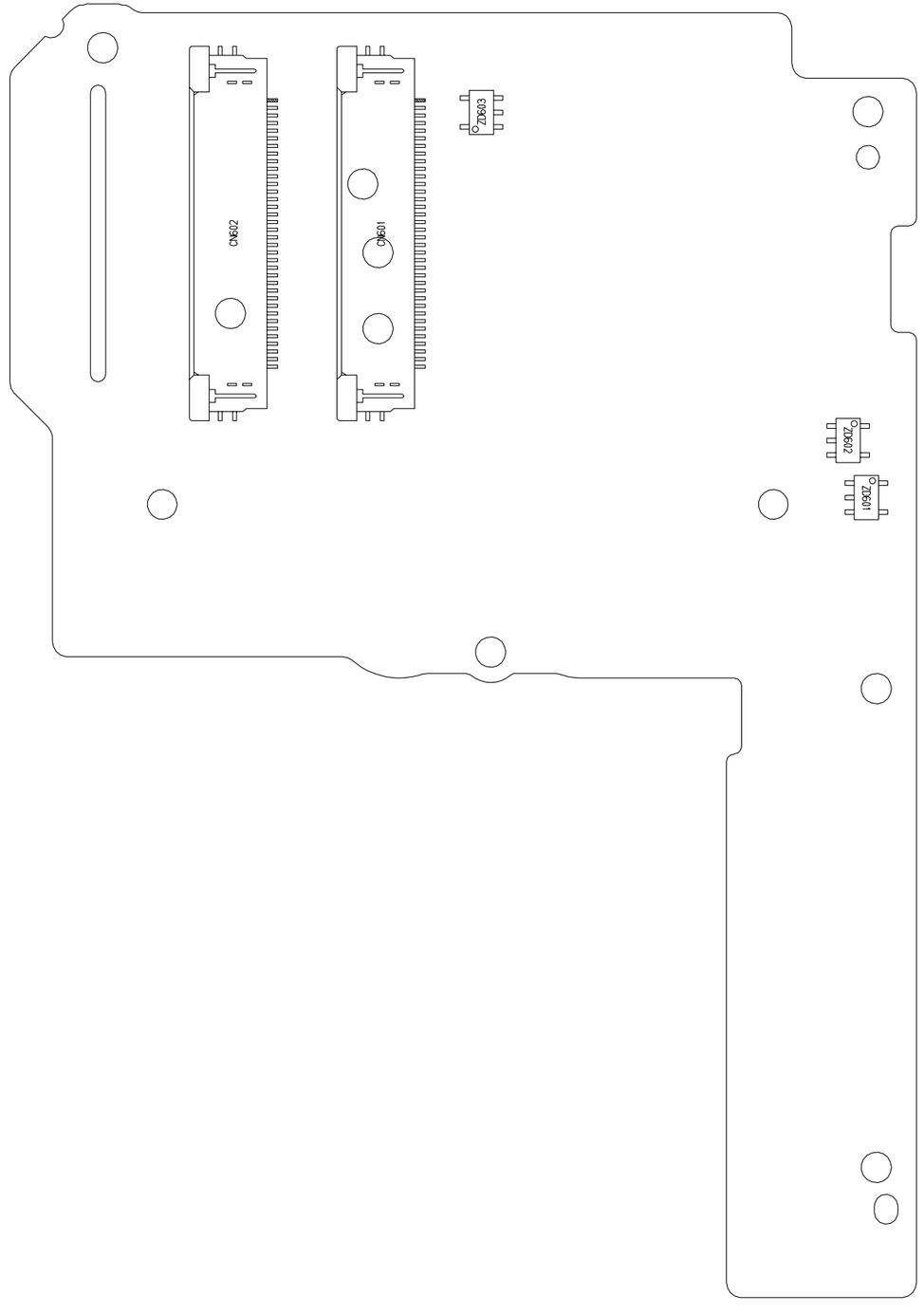
REAR COVER UNIT (SOLDERING SIDE)



REAR COVER UNIT (COMPONENT SIDE)



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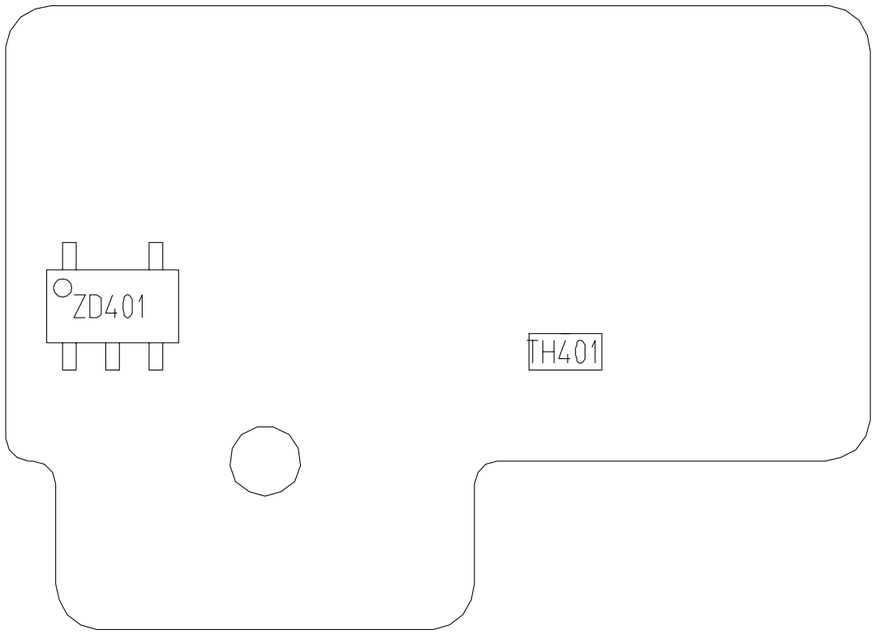
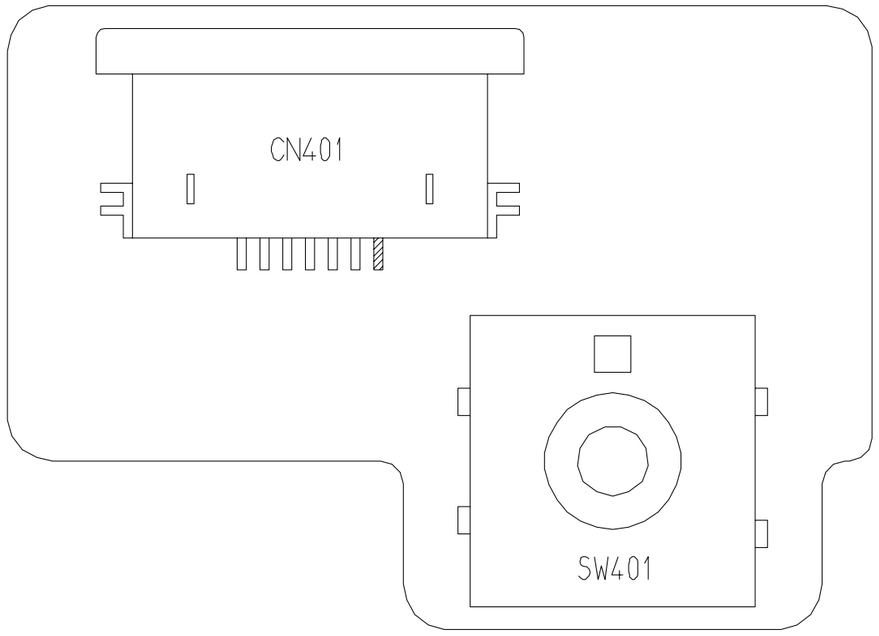
RLS PCB ASS'Y (SOLDERING SIDE)



RLS PCB ASS'Y (COMPONENT SIDE)



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How to print out the Auto Focus Chart

The large materials such as “Auto Focus Chart” that occupies a page of large size, can be divided into several smaller pages using “Graphic Select Tool” for printing the entire page.

< Procedures >

1. Select “ Text Select Tool” from the Command Bar and keep pressing it.

   Then, select the “ Graphic Select Tool”.

2. Select the desired portion to print. (Drag the cursor on desired area.)
3. Click “Print” of the Menu Bar. Check “Selected Thumbnails/Graphic”, then start printing.
   When you check “Fit of Page”, the data can be reduced or enlarged of its printing size so that the printing size fits the size of paper.*
4. To cancel the printing area, click an arbitrary position on the display.

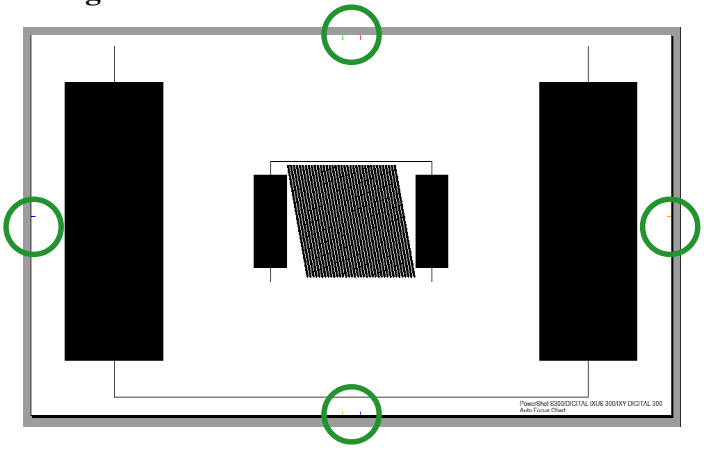
*** Remarks**

The “Auto Focus Chart” of the Service Manual that is saved in this CD-ROM, has the colored markings in colors so that the entire page can be divided into print papers (legal-size x 4 pages, A3 size x 3 pages). Operate as follows.

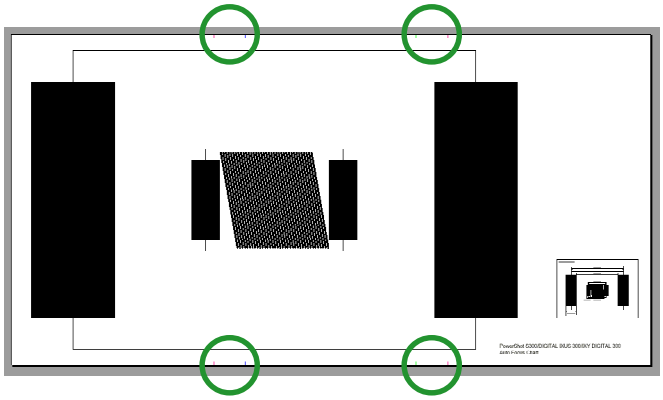
Select “Graphic Select Tool”. Select the 2 markings having the same color to select the first printing area. Press "Print" to print the first printing area. Perform the above steps 2 and 3. Select another 2 markings having the second color to select the second printing area. Press “Print” to print the second printing area. Repeat this procedure until the all pages are printed.

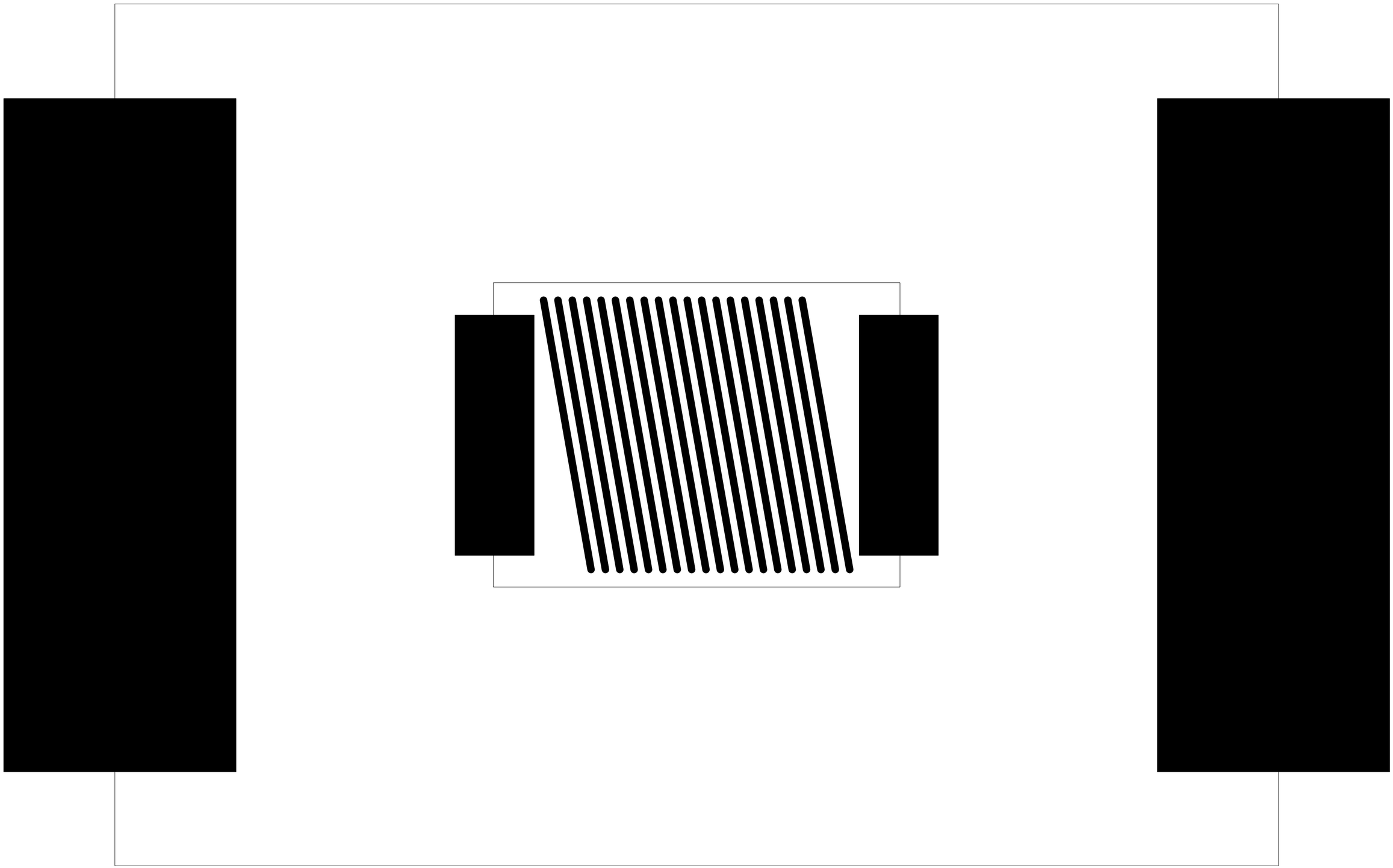
○: Markings

< Legal-size >



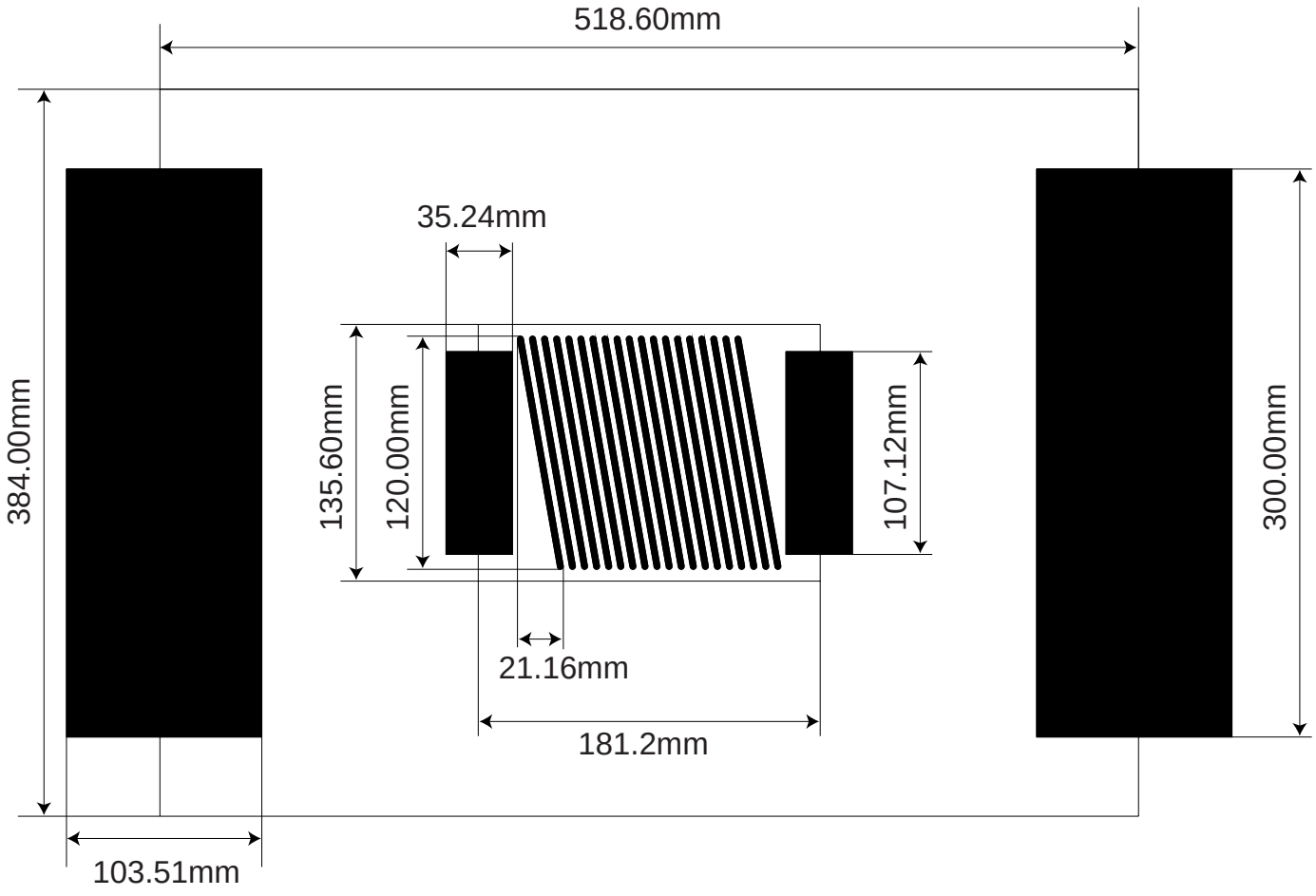
< A3 size >

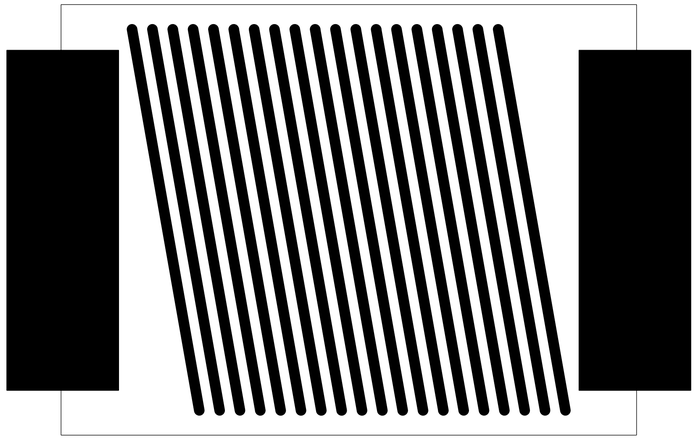


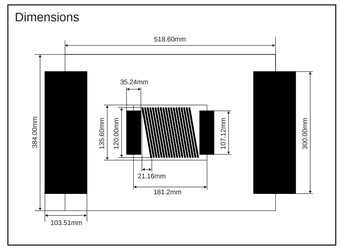


PowerShot A10 / PowerShot A20 Auto Focus Chart

Dimensions


518.60mm
384.00mm
35.24mm
135.60mm
120.00mm
107.12mm
300.00mm
21.16mm
181.2mm
103.51mm





PowerShot A10 / PowerShot A20
Auto Focus Chart